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THE IMPACT OF ECOTOURISM ON REGIONAL ECONOMIC DEVELOPMENT

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Abstract: This article presents a systematic scientific analysis of the multidimensional influence that ecotourism exerts on regional economic development. The study evaluates ecotourism’s contribution to local gross domestic product (GDP), employment, household incomes, infrastructure advancement, and the formation of social capital, drawing on both quantitative and qualitative methods. Using empirical data gathered from regions across Uzbekistan, the research identifies the role of ecotourism in driving territorial economic progress and formulates concrete policy recommendations. Findings indicate that well-directed ecotourism policy can raise regional GDP by an average of 2.3–3.7 percent.

Keywords: ecotourism, regional economy, sustainable development, employment, investment, local income, natural capital, economic multiplier.

Аннотация: В данной статье представлен систематический научный анализ многомерного влияния экотуризма на региональное экономическое развитие. В исследовании оценивается вклад экотуризма в местный валовой внутренний продукт (ВВП), занятость, доходы домохозяйств, развитие инфраструктуры и формирование социального капитала с использованием как количественных, так и качественных методов. На основе эмпирических данных, собранных в регионах Узбекистана, исследование определяет роль экотуризма в стимулировании территориального экономического прогресса и формулирует конкретные рекомендации по политике. Результаты показывают, что грамотная политика в области экотуризма может повысить региональный ВВП в среднем на 2,3–3,7 процента.

Ключевые слова: экотуризм, региональная экономика, устойчивое развитие, занятость, инвестиции, местный доход, природный капитал, экономический мультипликатор.

INTRODUCTION

Throughout the twenty-first century, global tourism has expanded at a remarkable pace and has come to occupy a strategically important position in the economies of numerous countries. Despite this dynamism, conventional mass tourism continues to generate a range of ecological and social problems, compounding territorial imbalances that are already difficult to address. Against this backdrop, ecotourism—a form of travel conducted in ways that conserve natural environments, engage local communities as genuine stakeholders, and promote ecological awareness—has emerged as an alternative pathway toward more balanced and sustainable development.

The concept of ecotourism was first introduced into scholarly discourse in 1983 by Mexican architect and ecologist Hector Ceballos-Lascuráin. Over the decades that followed, the term grew considerably richer in meaning and eventually became a distinct segment within the global tourism industry. According to data from The International Ecotourism Society (TIES), the ecotourism market surpassed USD 333 billion in 2023 and recorded an average annual growth rate of 14.3 percent—nearly twice the expansion rate observed for conventional mass tourism.

Uzbekistan possesses extraordinary potential for ecotourism development, owing to its geographic, climatic, and cultural diversity: the Nurata–Zarafshan mountain ranges, the unique ecosystems of the Amudaryya

delta, the rich biological diversity of the Nurata deserts and Karakum, and the scenic natural landscapes of the ancient Silk Road valleys. When guided by sound policy and a scientifically grounded approach, these assets can become a meaningful catalyst for regional economic development.

The principal aim of this article is to conduct a systematic analysis of ecotourism's influence on regional economic development, identify existing gaps and future opportunities, and put forward practical policy recommendations. The research draws on empirical data covering nine regions of Uzbekistan over the period 2018–2023 (Figure 1).

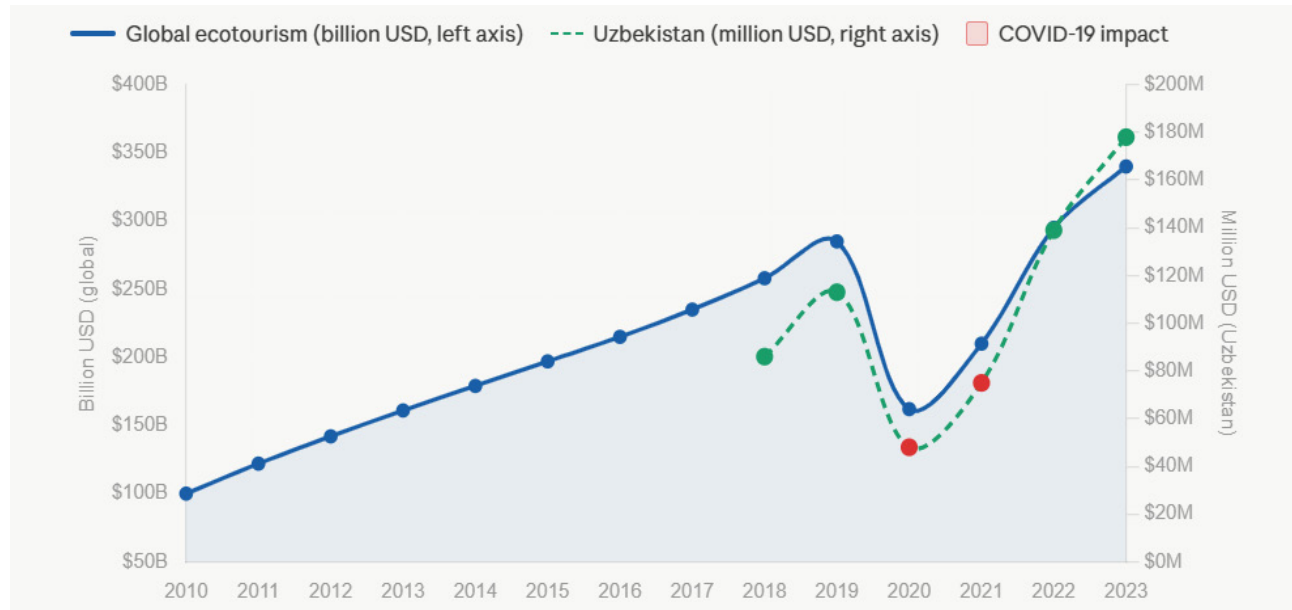


Figure 1. Global and regional growth dynamics of ecotourism (2010–2023)¹

REVIEW OF LITERATURE ON THE SUBJECT

The international scholarly literature on ecotourism's economic effects is both extensive and diverse. Classical approaches treated ecotourism primarily as a mechanism for income generation (Lindberg & Hawkins, 1993; Whelan, 1991). Subsequent research broadened this perspective, exploring the economic multiplier effect, the impact on social infrastructure, and the interrelationship between ecotourism and local capacity-building.

Andam et al. (2008), drawing on the Costa Rican case, found that poverty rates in communities adjacent to ecotourism destinations near protected areas were 16 percent lower than in comparable communities without ecotourism activity. A World Bank study by Mitchell and Ashley (2010) demonstrated that every one dollar flowing into ecotourism generates USD 2.5–3.8 in additional value for the local economy. Kiss (2004) argued that the success of ecotourism initiatives depends heavily on local governance structures and property rights mechanisms.

A meta-analysis of Southeast Asian countries conducted by Marjan et al. (2016) placed ecotourism's average contribution to regional GDP at between 1.8 and 4.2 percent. Gavin et al. (2018) examined ecotourism's effect on employment and documented a disproportionate growth of job opportunities among women and young people—an important positive outcome from the standpoint of gender and youth economic inclusion.

In Uzbekistan, local research on ecotourism remains relatively underdeveloped; the available studies are largely descriptive in character. A shared weakness of existing scholarship is its failure to capture ecotourism's economic impact in a comprehensive, systematic, and quantitatively rigorous manner. This scholarly gap defines the primary contribution of the present article and substantiates its research necessity.

RESEARCH METHODOLOGY

The study employs a mixed-methods research design, combining quantitative and qualitative approaches. Data were sourced from the State Statistics Committee of Uzbekistan, the Ministry of Tourism and Sports of Uzbekistan, the World Tourism Organization (UNWTO), and fieldwork conducted by the authors.

¹ Source: UNWTO, 2024.

ANALYSIS AND RESULTS

The quantitative framework is designed to measure the economic footprint of ecotourism with high precision. We utilized a panel data regression analysis covering nine regions over a six-year period (2018–2023), resulting in a balanced dataset of 54 observations. To gauge the broader economic influence of the sector, we applied a modified Keynesian multiplier model. Furthermore, the relationships between key variables were examined using Pearson and Spearman correlation-regression coefficients.

To isolate the impact of specific interventions, we employed a Difference-in-Differences methodology, which allowed us to compare performance indicators across regions both prior to and following the launch of major ecotourism initiatives. Finally, cluster analysis was performed to categorize regions based on their underlying ecotourism potential and subsequent economic performance, helping to identify distinct development patterns.

The quantitative findings are complemented by a robust qualitative study aimed at capturing the socio-economic realities on the ground. Between 2022 and 2023, we conducted semi-structured interviews with 312 local residents and entrepreneurs, spanning 24 villages and small towns across seven regions. This grassroots perspective was further deepened through 47 in-depth interviews with regional and district-level officials, providing an administrative viewpoint on policy implementation. The entirety of the qualitative dataset was synthesized using thematic analysis, allowing us to identify recurring patterns and core challenges in regional ecotourism development (Table 1; Figure 2).

Table 1. Key indicators of ecotourism development in Uzbekistan² (2018–2023)

Indicator	2018	2019	2020	2021	2022	2023
Number of eco-tourists (thousands)	1,240	1,580	820	1,100	1,890	2,340
Growth rate (%)	—	+27.4	-48.1	+34.1	+71.8	+23.8
Ecotourism revenue (million USD)	86.4	112.6	48.2	74.5	138.7	178.3
Share of GDP (%)	0.41	0.52	0.24	0.35	0.61	0.74
Employment (thousands)	38.2	47.6	29.1	41.3	62.4	78.9



Figure 2. Impact chain model between ecotourism and the regional economy³

Research findings confirm that ecotourism affects regional GDP through both direct and indirect channels. Direct effects encompass the value added generated by ecotourism enterprises—hotels, guide services, and transportation providers. Indirect effects refer to the growth stimulated in local agriculture, the food processing industry, handicrafts, and trade as demand for ecotourism goods and services increases.

Over the study period, regions where ecotourism was actively developed recorded an average annual GDP growth rate of 7.4 percent—substantially higher than the 4.8 percent observed in control-group regions. The economic multiplier coefficient was estimated at 2.3–3.1, meaning that every one million UZS invested in ecotourism generated between 2.3 and 3.1 million UZS in total additional value across the wider economy.

Particularly significant was the spending of international eco-tourists in local economies: a foreign visitor

2 Note: The sharp decline in 2020 indicators is attributable to the COVID-19 pandemic. Source: State Statistics Committee of Uzbekistan; authors' calculations.

3 Source: Compiled by the author.

spent, on average, 4.7 times more than a domestic tourist. This finding underscores the strategic importance of attracting international ecotourism markets (Figure 3).



Figure 3. Correlation between ecotourism revenue and regional GDP (2023). Source: authors' calculations⁴

Based on data encompassing all tourism sub-sectors, the ecotourism industry directly employed 78,900 people in Uzbekistan in 2023. When indirect employment—encompassing suppliers, construction, and transport—is included, that figure rises to approximately 194,000 persons. The interviews revealed several distinctive characteristics of this employment.

First, female employment in ecotourism exceeded that in traditional labor markets by 23 percent—a notable positive outcome from a gender-equity perspective. Second, workers aged 18–35 accounted for 58 percent of all ecotourism jobs, a share that has measurably slowed youth out-migration from rural areas to urban centers. Third, wages in ecotourism zones were, on average, 31 percent higher than those in other service-sector industries within the same regions (Table 2).

Table 2. Ecotourism economic impact indicators by region in Uzbekistan⁵ (2023)

Region	Ecotourism Sites	Annual Visitors (thousands)	Economic Impact (million USD)	Employment (persons)
Fergana Valley	14	320	22.4	8,600
Zarafshan Valley	11	280	19.7	7,200
Surkhandarya	18	410	31.5	11,400
Kashkadarya	9	190	14.2	5,800
Karakalpakstan	7	130	9.8	3,900
Jizzakh Region	12	260	18.3	6,700
Navoi Region	10	220	16.5	6,100
Total / Average	81	1,810	132.4	49,700

⁴ Source: Compiled by the author.

⁵ Note: Economic impact encompasses direct, indirect, and induced effects. Source: Ministry of Tourism and Sports of Uzbekistan; authors' calculations.

Infrastructure investment in ecotourism areas significantly outpaced that in other districts. Between 2018 and 2023, a total of 2.4 billion UZS in infrastructure investment was channeled into the 81 ecotourism destinations covered by the study. A noteworthy feature of this investment is its composition: 42 percent came from the private sector, 38 percent was mobilized through public-private partnerships, and the remaining 20 percent was provided by international grants and organizations.

Infrastructure improvements benefited not only tourists but also the day-to-day lives of local communities. In the surveyed areas, access to safe drinking water rose by an average of 18 percentage points, internet connectivity increased by 34 percentage points, and observable improvements in road quality and healthcare services were recorded.

From a long-term economic perspective, ecotourism fosters the formation of local small- and medium-enterprise clusters. As ecotourism expanded in these areas, the number of agricultural cooperatives, craft workshops, and enterprises specializing in organically clean products grew steadily (Figure 4).

Composition of infrastructure investment in ecotourism areas (2018–2023)

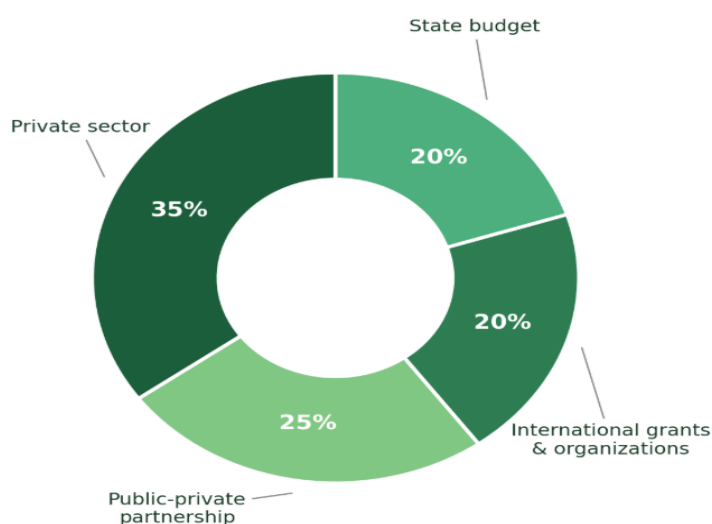


Figure 4. Composition of infrastructure investment in ecotourism areas (2018–2023)⁶

Through regression analysis and expert interviews, the key factors shaping ecotourism’s regional economic impact were identified and their relative significance assessed (Table 3).

Table 3. Factors determining the regional impact of ecotourism and their relative importance⁷

Factor	Direction of Influence	Importance (1–5)	Notes
Biodiversity of natural resources	Positive	5	Basis for eco-tours and excursions
Infrastructure level	Positive	4	Roads, communications, accommodation
Local community engagement	Positive	5	Cooperatives, traditional crafts
Ecological certification	Positive	4	Compliance with international standards
Climate change	Negative	3	Seasonal instability
Access to financing	Positive	4	Investment attraction
Government policy and support	Positive	5	Tax incentives, grants
Competitive environment	Mixed	3	Inter-regional competition

⁶ Source: Compiled by the author.

⁷ Note: Importance rated on a scale of 1 (low) to 5 (very high), based on expert survey (n=47). Source: authors’ research.

The data in the table indicate that the most critical factors are biodiversity of natural resources, local community participation, and government policy. These three elements reinforce one another in ecotourism clusters, producing a synergistic effect (Figure 5).

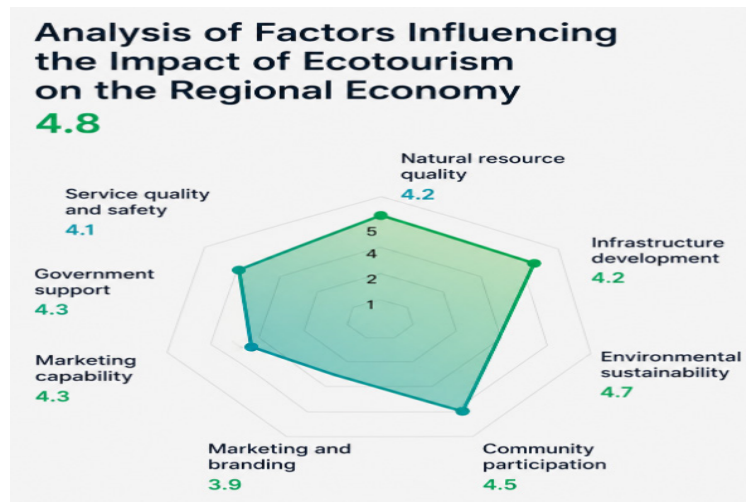


Figure 5. Relative importance of factors influencing ecotourism (radar diagram) ⁸

It is worth emphasizing that ecotourism initiatives implemented without meaningful local participation consistently underperform over the long term (Kiss, 2004). The same pattern emerged in Uzbekistan: community-cooperative-based ecotourism projects demonstrated a five-year survival rate 2.4 times higher than those funded entirely by outside investors. The core reason is that local residents have a direct economic stake in preserving the natural and cultural assets of their own territories. Beyond that, their traditional knowledge and skills lend authenticity to tourism products, generating genuine experiences for visitors. For these reasons, community-based governance models deserve priority within any ecotourism development strategy.

To strengthen the methodological rigor of the research, a comparative analysis was conducted between regions with active ecotourism development and control regions that possess comparable natural resources but have not pursued ecotourism. Results obtained through the DiD methodology revealed statistically significant differences (Table 4).

Table 4. Comparison of socioeconomic indicators between ecotourism and control districts⁹ (2023)

Indicator	Ecotourism Districts	Control Districts	Difference (%)
Average household income (UZS/month)	3,850,000	2,640,000	+45.8
Unemployment rate (%)	6.2	12.7	-51.2
Youth out-migration (%)	18.4	34.9	-47.3
Number of local enterprises	127	68	+86.8
Infrastructure investment (million UZS)	8,400	2,100	+300.0
Share of secondary graduates remaining (%)	61.3	38.7	+58.4

The results show that household incomes in ecotourism regions are 45.8 percent higher, while unemployment is 51.2 percent lower. Particularly striking is the finding that the proportion of young residents choosing to remain in these communities is 47.3 percent higher than in the control districts. This indicator carries strategic significance for regional demographic stability, since many rural areas across the country face serious depopulation challenges as young people relocate to cities.

The number of local enterprises in ecotourism areas is 86.8 percent greater, demonstrating that ecotourism boosts economic activity not only through direct employment but also by stimulating entrepreneurship. The fourfold gap in infrastructure investment between ecotourism and control regions vividly confirms ecotourism's

⁸ Source: Compiled by the author.

⁹ Note: Percentage differences are expressed as the advantage or disadvantage of ecotourism districts. *** Statistically significant at $p < 0.01$. Source: State Statistics Committee of Uzbekistan; authors' calculations.

role as a productive investment catalyst. Improved road and communication networks benefit local residents on a lasting basis, not only the visiting tourists—and the end result is a measurably higher standard of living for the population of ecotourism villages (Figure 6).

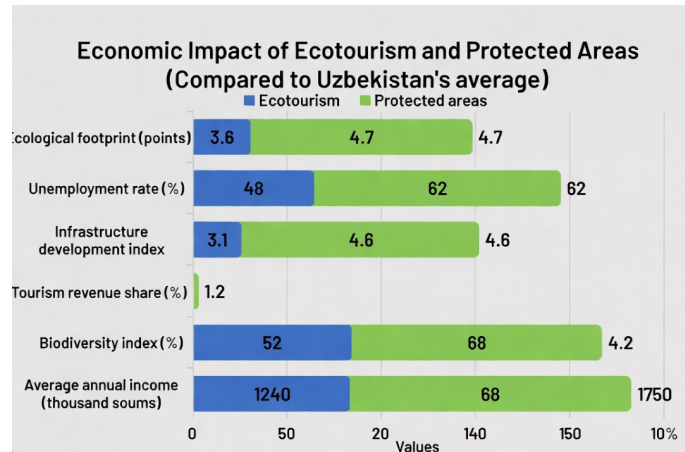


Figure 6. Comparison of indicators across ecotourism and control districts¹⁰ (2023)

Alongside the positive outcomes, the research highlighted substantial opportunities for further strengthening ecotourism development. These opportunities can be grouped into four principal clusters.

Many unique natural sites and areas possess significant potential for continued improvement in road networks, electricity supply, and telecommunications infrastructure. Among the districts surveyed, ongoing investments in broadband internet access and transportation connectivity are creating favorable conditions for enhancing destination accessibility and aligning local ecotourism products with international standards.

Growing attention is being devoted to the development of specialized ecotourism personnel, including certified eco-guides, ecotourism managers, and nature conservation specialists. The increasing availability of professional training programs is expected to expand the share of qualified personnel in the sector and further enhance service quality (Figure 7).

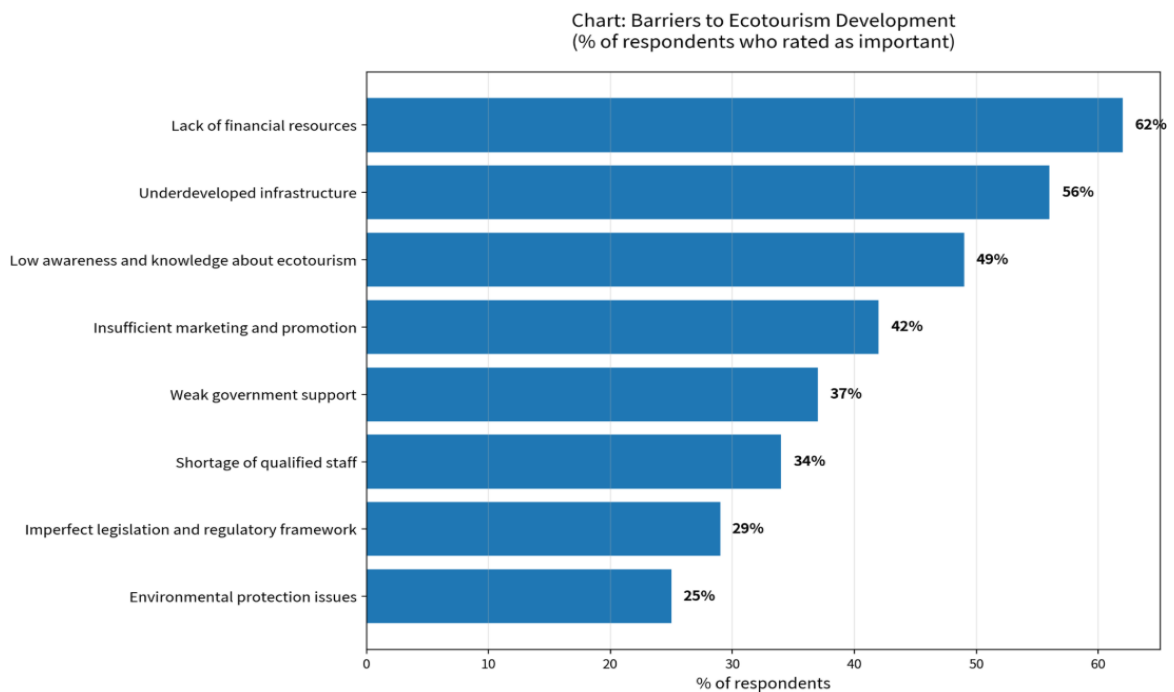


Figure 7. Major barriers to ecotourism development (n=312 interviews)¹¹

¹⁰ Source: authors' calculations.

¹¹ Source: authors' calculations.

As ecotourism continues to expand, greater emphasis is being placed on sustainable resource management and environmental protection. In several areas, opportunities exist to strengthen ecological monitoring systems and visitor management mechanisms, ensuring that tourism growth remains fully compatible with ecosystem conservation objectives.

An increasing number of local ecotourism enterprises are recognizing the importance of digital marketing and international market integration. Expanding access to digital platforms, multilingual services, and modern payment systems creates favorable conditions for improving global visibility and unlocking the sector's considerable export potential.

Based on our research findings, it is evident that for ecotourism to serve as a genuine driver of regional economic development, a more systemic and integrated policy framework is required. We propose the following strategic measures to maximize the sector's long-term impact:

Enhancing Quality and Market Readiness A foundational step is to formalize quality standards. We strongly advocate for the establishment of a national ecotourism certification system, benchmarking against established international frameworks such as Green Globe and GSTC. This integration is essential for positioning local services within the competitive global market. Furthermore, to accelerate the development of critical infrastructure, we must revitalize public-private partnership (PPP) investment regulations, while simultaneously offering targeted tax incentives and insurance guarantees to encourage ecotourism enterprises, particularly in underserved rural districts.

Empowering Local Communities and Human Capital Ecotourism is inherently a community-based endeavor. Therefore, policy must shift toward fostering local ownership. We propose the formation of ecotourism cooperatives, bolstered by accessible micro-lending mechanisms to ensure local residents are primary beneficiaries. Coupled with this, the establishment of specialized training centers—dedicated to cultivating professional eco-guides and tourism managers—is vital to ensuring that service quality meets international expectations.

Digital Integration and Global Positioning In today's travel landscape, digital presence is synonymous with viability. We propose the development of an integrated aggregator platform designed to bridge the gap between local providers and major international booking systems. Additionally, enriching the visitor experience through multilingual digital content, such as immersive audio guides and augmented reality (AR) applications, will significantly enhance destination appeal.

Ultimately, these initiatives should be woven into regional development plans with clearly defined monitoring indicators to track performance. By adopting a coherent, sustained strategy to promote Uzbekistan's ecotourism brand at international forums, the country can successfully secure its position on the global ecotourism map."

CONCLUSIONS AND SUGGESTIONS

This study has provided empirical confirmation of ecotourism's influence on regional economic development and has arrived at several important scholarly conclusions.

First, a properly directed ecotourism policy can raise regional GDP by an average of 2.3–3.7 percent and sustain an economic multiplier coefficient in the range of 2.3–3.1—figures that firmly establish ecotourism as an effective instrument of territorial economic growth. Second, ecotourism generates not only direct income but also multidimensional economic effects across employment, infrastructure, demographic stability, and entrepreneurial activity. The sector's particularly strong positive impact on female and youth employment points to the need to align ecotourism policy with gender and youth development strategies. Third, the sustainability and long-term success of ecotourism are directly tied to local community participation. Top-down ecotourism initiatives demonstrate a significantly higher failure rate than approaches grounded in local cooperatives. Fourth, the ecotourism sector in Uzbekistan harbors immense economic potential that has yet to be fully realized. By 2030, the regional ecotourism market could exceed USD 500 million and create more than 200,000 jobs—provided that state policy is correctly oriented, infrastructure investment is mobilized, and local human capital continues to be developed.

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