



## SCENARIOS FOR INCREASING THE EFFICIENCY OF UTILIZING UZBEKISTAN ECOTOURISM POTENTIAL

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**Abstract.** This paper explores strategies for increasing the efficiency of utilizing ecotourism potential in Uzbekistan, aiming to promote sustainable tourism development and maximize ecological and economic benefits across the country. Utilizing a comprehensive rating system that assesses regions on a scale from 0.000 to 1.000, we introduce an innovative "Star-Rating" method to categorize regions based on their ecotourism utilization levels. This framework includes five distinct categories: "One-Star" regions (0.001 to 0.199) signify minimal ecotourism utilization, indicating untapped potential; "Two-Star" regions (0.200 to 0.399) reflect relatively low utilization, suggesting moderate development opportunities; "Three-Star" regions (0.400 to 0.599) demonstrate moderate utilization;

"Four-Star" regions (0.600 to 0.799) indicate relatively high levels of utilization; and "Five-Star" regions (0.800 to 1.000) represent regions with maximized ecotourism potential. This rating system serves as a diagnostic tool, helping to identify the strengths and weaknesses of each region and develop region-specific strategies. Furthermore, this paper proposes targeted policies for infrastructure improvements, community engagement, and marketing efforts tailored to each region's development needs. By aligning these strategies with global best practices and the United Nations Sustainable Development Goals, our analysis provides a comprehensive approach to promoting sustainable and effective ecotourism development in Uzbekistan. By

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*applying these recommendations the efficiency of Ecotourism could be higher.*

**Introduction.** Uzbekistan, a land rich in history and culture, is rapidly emerging as a promising destination for ecotourism. With its diverse landscapes ranging from the vast Kyzylkum Desert to the lush Fergana Valley, the country offers a unique blend of natural beauty and ecological significance. As global interest in sustainable travel grows, Uzbekistan stands at a pivotal moment to leverage its untapped ecotourism potential. Ecotourism not only promises to boost the economy but also offers a sustainable path to preserve the country's rich biodiversity and cultural heritage [1].

Despite the evident potential, the current utilization of ecotourism resources in Uzbekistan remains suboptimal. Factors such as inadequate infrastructure, limited community involvement, and insufficient marketing have hindered the growth of this sector. Addressing these challenges requires a multifaceted approach that integrates sustainable practices with innovative strategies. This paper explores various scenarios aimed at enhancing the efficiency of ecotourism in Uzbekistan, focusing on infrastructure improvement, community engagement, marketing strategies, sustainable practices, regulatory support, innovative tourism products, and technology integration [2].

By examining successful case studies and best practices from around the world, this paper aims to provide a comprehensive framework for developing Uzbekistan's ecotourism sector. Through strategic investments and collaborative efforts, Uzbekistan can transform its ecotourism landscape, offering travelers authentic experiences while fostering environmental stewardship and socio-economic

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development. The scenarios outlined in this paper not only highlight the potential pathways for growth but also emphasize the importance of a sustainable and inclusive approach to tourism development [3].

Ecotourism, defined as responsible travel to natural areas that conserves the environment, sustains the well-being of the local people, and involves interpretation and education, has emerged as a critical component of sustainable tourism development globally. As nations seek to balance economic growth with environmental conservation, ecotourism presents a viable pathway for achieving this equilibrium. Uzbekistan, with its rich cultural heritage, diverse landscapes, and unique biodiversity, possesses significant untapped potential for ecotourism.

The current state of ecotourism in Uzbekistan is characterized by a nascent yet growing interest, with several regions showcasing notable natural and cultural attractions. However, the full potential of these ecotourism resources remains underutilized due to various challenges, including inadequate infrastructure, limited awareness, and insufficient integration of local communities into the tourism framework. Recognizing these challenges and the substantial opportunities they present is essential for crafting effective strategies to enhance ecotourism in the country.

This paper aims to analyze and propose scenarios for increasing the efficiency of utilizing ecotourism potential in Uzbekistan. By employing a rating system that categorizes regions on a scale from 0.000 to 1.000, we introduce a "Star-Rating" method to systematically organize regions based on their ecotourism utilization levels. The



classification ranges from "One-Star" regions, indicating minimal utilization, to "Five-Star" regions, representing high utilization of ecotourism potential.

Through a comprehensive analysis of current ecotourism practices, stakeholder perspectives, and global best practices, this study identifies key strengths and weaknesses within Uzbekistan's ecotourism sector. It proposes actionable strategies for policy improvements, infrastructure development, community involvement, and marketing initiatives. By aligning these strategies with the United Nations Sustainable Development Goals, this paper seeks to provide a holistic approach to fostering sustainable ecotourism development in Uzbekistan, ultimately contributing to the preservation of natural and cultural heritage while promoting economic growth and community well-being.

In the context of increasing the efficiency of utilizing ecotourism potential in Uzbekistan, the following hypotheses can be formulated:

Hypothesis 1 (H1): Regions in Uzbekistan with higher investments in ecotourism infrastructure (e.g., transportation, accommodations, and visitor centers) will exhibit higher utilization of ecotourism potential. Hypothesis 2 (H2): Active involvement and participation of local communities in ecotourism initiatives will positively correlate with higher ecotourism potential utilization in those regions. Hypothesis 3 (H3): Regions with targeted and effective marketing strategies will have a higher rating in ecotourism potential utilization compared to regions with limited marketing efforts. Hypothesis 4 (H4): Implementation of comprehensive policies and regulations that support sustainable ecotourism development will lead to higher utilization of ecotourism potential in Uzbekistan. These hypotheses provide a structured framework for investigating the

factors that influence the efficient utilization of ecotourism potential in Uzbekistan. By testing these hypotheses, the study can identify key drivers and barriers to sustainable ecotourism development and propose evidence-based strategies for improvement.

## Literature review

### Ecotourism Infrastructure

Recent studies highlight the critical role of infrastructure in enhancing the ecotourism experience and its sustainability. According to a study by Wang et al. [4], developing robust transportation networks and eco-friendly accommodations significantly boosts tourist satisfaction and promotes environmental stewardship. Specifically, in regions like Uzbekistan, where access to remote natural sites can be challenging, the improvement of roads and the establishment of eco-lodges are paramount for attracting and retaining ecotourists.

### Community Involvement

Engaging local communities in ecotourism initiatives has been shown to yield substantial benefits both for residents and tourists. A paper by López-Guzmán et al. [5] emphasizes that community-based tourism not only empowers local populations but also enhances the authenticity of the tourist experience. In Uzbekistan, fostering partnerships with local communities through education and revenue-sharing models could lead to more sustainable and inclusive tourism development.

### Marketing Strategies

Effective marketing strategies are essential for positioning ecotourism destinations in the global market. A recent analysis by Kim and Park [6] suggests that leveraging digital marketing and social media platforms can significantly increase visibility and attract a broader audience. For Uzbekistan, strategic collaborations with international travel influencers and the use of targeted online



campaigns could amplify the country's ecotourism appeal .

### **Sustainable Practices**

Sustainability is at the heart of successful ecotourism. A study by Smith et al. [7] highlights the importance of implementing eco-certification programs and promoting environmental education among tourists. In Uzbekistan, introducing such initiatives could ensure that tourism growth does not come at the expense of the natural environment. Moreover, incorporating carbon offsetting programs can appeal to the environmentally conscious traveler .

### **Regulatory and Policy Support**

The role of government policy in fostering ecotourism cannot be overstated. According to recent research by García-Rosell and Mäkinen [8], effective regulatory frameworks and supportive policies are crucial for sustainable ecotourism development. In Uzbekistan, policies that incentivize sustainable business practices and expand protected areas could create a more conducive environment for ecotourism growth .

### **Innovative Tourism Products**

Diversifying tourism offerings can significantly enhance the attractiveness of a destination. A study by Johnson and Chen [9] shows that activities like guided wildlife tours, cultural immersion programs, and adventure sports are highly effective in attracting niche markets. For Uzbekistan, developing such innovative tourism products could cater to diverse tourist interests and promote year-round tourism .

### **Technology Integration**

The integration of technology in tourism management is increasingly seen as a game-changer. Recent findings by Zhang et al. [10] highlight the benefits of mobile applications and virtual reality tours in enhancing tourist engagement and managing visitor flows. Implementing such technologies in

Uzbekistan could provide tourists with detailed information about ecotourism sites, improve their overall experience, and facilitate better management of tourism resources .

### **Global Perspectives on Ecotourism**

Ecotourism, as defined by the International Ecotourism Society (TIES), involves responsible travel to natural areas that conserves the environment and improves the well-being of local people [11]. Globally, ecotourism has been identified as a sustainable development tool that can offer economic benefits while preserving natural and cultural resources. Studies highlight successful ecotourism models in countries such as Costa Rica, Kenya, and Australia, where well-developed policies, community involvement, and sustainable practices have led to thriving ecotourism industries [12].

Costa Rica, for example, is renowned for its extensive national park system and biodiversity, which have become key attractions for eco-tourists. The country's emphasis on conservation, coupled with government support and community engagement, has positioned it as a leader in ecotourism [14]. Similarly, Kenya's Maasai Mara and Australia's Great Barrier Reef exemplify how targeted conservation efforts and community-based tourism can result in sustainable tourism models that benefit both the environment and local populations [13].

### **Ecotourism Potential in Uzbekistan**

Uzbekistan, located at the heart of Central Asia, boasts a wealth of natural and cultural resources, including the Silk Road heritage sites, diverse landscapes, and unique biodiversity. Despite this potential, the ecotourism sector in Uzbekistan remains underdeveloped. Existing literature suggests that while there are numerous natural reserves and national parks, their potential for attracting eco-tourists is not fully realized due to several constraints [15].

Challenges identified in the Uzbek context include limited infrastructure, insufficient marketing efforts, and a lack of comprehensive policies that support sustainable tourism development. Furthermore, there is often a disconnect between tourism development plans and the actual needs and perspectives of local communities [16]. This disconnect can lead to initiatives that fail to gain local support or deliver sustainable economic benefits.

### **Rating and Evaluation Methods in Ecotourism**

Evaluating the effectiveness and sustainability of ecotourism initiatives requires robust assessment methods. Various rating systems and evaluation frameworks have been developed to measure ecotourism performance. These frameworks typically consider factors such as environmental impact, community involvement, economic benefits, and visitor satisfaction [17].

The proposed "Star-Rating" method for Uzbekistan draws inspiration from such frameworks, aiming to categorize regions based on their utilization of ecotourism potential. This approach not only provides a clear and easily understandable rating for stakeholders but also helps identify specific areas for improvement. By aligning the ratings with specific criteria related to ecotourism, the method ensures a comprehensive assessment that can guide targeted interventions.

### **Sustainable Development Goals (SDGs) and Ecotourism**

The alignment of ecotourism with the United Nations Sustainable Development Goals (SDGs) underscores its potential as a tool for sustainable development. Goals such as SDG 8 (Decent Work and Economic Growth), SDG 12 (Responsible Consumption and Production), and SDG 15 (Life on Land) are particularly relevant to ecotourism [18]. By promoting sustainable economic activities,

conserving biodiversity, and fostering inclusive economic growth, ecotourism can contribute significantly to achieving these goals.

### **Methodology**

This study employs a mixed-methods approach, combining qualitative and quantitative research methods to provide a comprehensive analysis of the ecotourism potential in Uzbekistan. The research framework includes data collection from secondary sources, field visits, stakeholder interviews, and the application of a rating system to assess and categorize regions based on their ecotourism utilization levels. The methodology combines qualitative and quantitative techniques to provide a holistic understanding of ecotourism potential in Uzbekistan. By employing a robust rating system and engaging with a diverse range of stakeholders, the study aims to deliver actionable insights and recommendations for enhancing the efficiency and sustainability of ecotourism development in Uzbekistan. In addition the min/max inventory method is used to reorder strategy that sets a trigger to reorder when the minimum value is reached.

**Results and discussion.** Based on the analysis of modern trends in the development of the international tourism services market, not only ecotourism but also the entire tourism industry is prioritizing ensuring the safety of interactions between nature and people in the process of organizing tourist trips. This includes reducing the negative impact of tourists on the environment and increasing the efficiency of utilizing the region's tourism potential.

### **Discussion**

Before developing scientifically grounded scenarios to increase the efficiency of utilizing tourism potential, it is necessary to establish a system of rating indicators for each region's level of tourism potential

utilization. In this regard, it is advisable to base this on the difference from the national average utilization level of ecotourism potential and use the following formula:

$$R_{ETS} = \frac{K_{teh} - K_{Rmin}}{K_{Rmax} - K_{Rmin}} \quad (1)$$

In this context:

$R_{ETS}$  – rating indicator based on ecotourism potential;

$K_{teh}$  – indicator of the region being analyzed;

$K_{Rmin}$  – minimum indicator at the national level;

$K_{Rmax}$  – maximum indicator at the national level.

The proposed formula for calculating the rating indicators for the utilization of ecotourism potential can be applied to any ecotourism resources. According to the analysis, the majority of ecotourists visiting

our country utilize specialized accommodation facilities for relaxation, recreation, treatment, and preventive purposes. These specialized accommodations include sanatorium-resort establishments. Considering this situation, we have evaluated the rating indicators for specialized accommodation facilities across the districts of the republic.

Each indicator related to the activities of specialized accommodation facilities in various regions of our country should be evaluated using the aforementioned formula (1). Specifically, this involves calculating the rating indicators for the number of specialized accommodation facilities, the number of beds in these facilities, and the number of tourists utilizing the services of such facilities. By separately calculating the rating indicators for each of these aspects, it is possible to draw comprehensive conclusions.

**Table 1**

**Number of specialized accommodation facilities across the regions of the Republic of Uzbekistan, in units<sup>2</sup>**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	183	193	211	211	494	328	145
including:							
Republic of Karakalpakstan	10	10	10	7	28	17	7
Andijan Region	10	10	12	12	61	29	19
Bukhara Region	3	3	3	4	7	7	4
Jizzakh Region	11	10	14	11	24	14	3
Kashkadarya Region	11	12	13	17	29	28	17
Navoi Region	6	7	7	7	11	12	6
Namangan Region	16	17	17	18	26	11	-5
Samarkand Region	21	22	23	29	32	31	10
Surkhandarya Region	9	12	12	12	17	4	-5
Syrdarya Region	1	1	-	2	3	2	1
Tashkent Region	25	30	31	36	143	79	54
Fergana Region	39	41	44	36	51	44	5
Khorezm Region	4	4	7	5	20	20	16

<sup>2</sup> Authors' development based on research results

Tashkent City	17	14	18	15	42	30	13
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According to the analysis, from 2016 to 2021, the number of sanatorium-resort establishments, considered specialized accommodation facilities in our country, increased by 79.2% or by 145 units, rising from 183 to 328. In 2016, the number of such establishments in Fergana (39), Tashkent (25), and Samarkand (21) regions constituted approximately 46.5% of the total specialized accommodation facilities in the republic. By 2021, despite the increase in the number of specialized accommodation facilities across the republic, the share of these regions was approximately 47.0% (see Table 1).

Based on the calculation results of the rating for the utilization of ecotourism potential according to formula (1), the accounting findings are presented in Table 2. According to the accounting results, if in 2016 the Fergana region had the highest rating for the number of specialized accommodation facilities, by 2021, the Tashkent region obtained the highest rating indicator. Conversely, the Syrdarya region was considered to have the lowest rating in terms of the number of specialized accommodation facilities related to ecotourism potential (see Table 2).

**Table 2**

**Ecotourism Potential Rating Based on the Number of Specialized Accommodation Facilities Across the Regions of the Republic of Uzbekistan<sup>3</sup>**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	0,318	0,320	0,300	0,384	0,231	0,278	-0,039
including:							
Republic of Karakalpakstan	0,237	0,225	0,171	0,147	0,179	0,195	-0,042
Andijan Region	0,237	0,225	0,220	0,294	0,414	0,351	0,114
Bukhara Region	0,053	0,050	0,000	0,059	0,029	0,065	0,012
Jizzakh Region	0,263	0,225	0,268	0,265	0,150	0,156	-0,107
Kashkadarya Region	0,263	0,275	0,244	0,441	0,186	0,338	0,075
Navoi Region	0,132	0,150	0,098	0,147	0,057	0,130	-0,002
Namangan Region	0,395	0,400	0,341	0,471	0,164	0,117	-0,278
Samarkand Region	0,526	0,525	0,488	0,794	0,207	0,377	-0,150
Surkhandarya Region	0,211	0,275	0,220	0,294	0,100	0,026	-0,185
Syrdarya Region	0,001	0,001	–	0,001	0,001	0,001	0,000
Tashkent Region	0,632	0,725	0,683	1,000	1,000	1,000	0,368
Fergana Region	1,000	1,000	1,000	1,000	0,343	0,545	-0,455
Khorezm Region	0,079	0,075	0,098	0,088	0,121	0,234	0,155
Tashkent City	0,421	0,325	0,366	0,382	0,279	0,364	-0,057

Considering that the rating results are obtained on a scale from 0.000 to 1.000, we

propose the following grouping process based on the "Star-Rating" method for

<sup>3</sup> Authors' development based on research results

organizing the regions according to their rating results. According to this:

- From 0.001 to 0.199 - "One-Star" group. Regions with minimal utilization of ecotourism potential.
- From 0.200 to 0.399 - "Two-Star" group. Regions with relatively low utilization of ecotourism potential.
- From 0.400 to 0.599 - "Three-Star" group. Regions with moderate utilization of ecotourism potential.
- From 0.600 to 0.799 - "Four-Star" group. Regions with relatively high utilization of ecotourism potential.
- From 0.800 to 1.000 - "Five-Star" group. Regions with high utilization of ecotourism potential.

Based on the grouping process according to the "Star-Rating" method proposed for the rating indicators based on the number of specialized accommodation facilities, the following conclusions can be drawn regarding the 2021 rating indicators:

- The regions of Sirdaryo (0.001), Surkhandaryo (0.026), Bukhara (0.065), Namangan (0.117), Navoi (0.130), Jizzakh (0.156) and the Republic of Karakalpakstan (0.195) are classified under the "One-Star" group.
- The regions of Khorezm (0.234), Kashkadarya (0.338), Andijon (0.351), Samarkand (0.377), and Tashkent City (0.364) are classified under the "Two-Star" group. Additionally, the overall national indicator (0.278) also aligns with this group.

- Only the Fergana region (0.545) is classified under the "Three-Star" group.

- No regions are identified as part of the "Four-Star" group.

- Only the Tashkent region (1.000) is identified as part of the "Five-Star" group.

This classification provides insights into the level of utilization of ecotourism potential across different regions of the Republic of Uzbekistan.

"Evaluating the Efficiency of Utilizing Ecotourism Potential in Providing Services to Ecotourists at Specialized Facilities in Regions: Calculating the Average Score" To assess the efficiency of utilizing ecotourism potential in providing services to ecotourists at specialized facilities in regions, it is necessary to calculate the average value of all indicators related to this service type based on the proposed formula (1). The formula yields the following expression:

$$R_{ETSS} = \frac{R_{ETS1} + R_{ETS2} + \dots + R_{ETS_n}}{n} \quad (2)$$

Here:

$R_{ETSS}$  – total rating of the efficiency of utilizing ecotourism potential in regions;

$R_{ETS1} + R_{ETS2} + \dots + R_{ETS_n}$  – sum of rating indicators based on components related to ecotourism activities according to formula (1);

$n$  – the number of component indicators utilized in calculating the total rating of the efficiency of utilizing ecotourism potential.

**Table 3**

**The number of specialized accommodation facilities across the regions of the Republic of Uzbekistan, in units of thousands<sup>4</sup>**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	22,2	22,6	27,2	28,1	57,6	99,5	77,3
including:							
Republic of Karakalpakstan	0,8	0,8	0,8	0,6	2,2	1,7	0,9

<sup>4</sup> Authors' development based on research results



Andijan Region	0,7	0,9	1,0	0,8	2,6	1,9	1,2
Bukhara Region	0,5	0,5	0,6	0,6	0,8	1,0	0,5
Jizzakh Region	0,9	1,0	1,5	1,3	1,7	1,4	0,5
Kashkadarya Region	0,9	1,1	1,6	2,3	6,1	6,8	5,9
Navoi Region	0,6	0,8	0,7	0,7	1,2	1,1	0,5
Namangan Region	2,8	2,8	2,8	2,9	3,9	1,6	-1,2
Samarkand Region	1,8	2,0	2,6	2,8	3,2	2,9	1,1
Surkhandarya Region	0,8	1,1	1,5	1,3	2,9	0,7	-0,1
Syrdarya Region	0,0	0,0	-	0,3	0,9	0,5	0,49
Tashkent Region	4,5	4,5	5,1	6,3	18,2	67,4	62,9
Fergana Region	4,3	3,8	4,4	4,2	4,3	4,5	0,2
Khorezm Region	0,4	0,4	0,8	0,6	2,6	2,5	2,1
Tashkent City	3,2	2,9	3,8	3,4	6,9	5,4	2,2

Gathering statistical information regarding the activities in the field of ecotourism in our country is a complex task, and this situation emphasizes the necessity of regularly monitoring the development of ecotourism and compiling statistical data. As part of our ongoing rating evaluation, we calculate the number of specialized accommodation facilities and the number of visits to such ecotourism objects according to the formula (1).

According to the analysis, from 2016 to 2021, the number of places in our country specialized for ecotourism increased approximately 4.5 times, reaching from around 22,200 to 99,500. Specifically, within the regions of the republic, the number of places in Tashkent region engaged in sanatorium-resort activities sharply increased. Consequently, the number of specialized accommodation facilities in the region rose from around 4,500 in 2016 to approximately 67,400 in 2021 (see Table 3).

**Table 4**

**The Ecotourism Potential Rating Based on the Number of Specialized Accommodation Facilities Across the Regions of the Republic of Uzbekistan<sup>5</sup>**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	0,351	0,357	0,308	0,285	0,190	0,099	-0,252
including:							
Republic of Karakalpakstan	0,176	0,176	0,044	0,050	0,080	0,018	-0,158
Andijan Region	0,154	0,198	0,089	0,083	0,103	0,021	-0,133
Bukhara Region	0,109	0,109	0,000	0,050	0,000	0,007	-0,102
Jizzakh Region	0,198	0,220	0,200	0,167	0,052	0,013	-0,185
Kashkadarya Region	0,198	0,243	0,222	0,333	0,305	0,094	-0,104
Navoi Region	0,131	0,176	0,022	0,067	0,023	0,009	-0,122
Namangan Region	0,621	0,621	0,489	0,433	0,178	0,016	-0,605
Samarkand Region	0,399	0,443	0,444	0,417	0,138	0,036	-0,363

<sup>5</sup> Authors' development based on research results

Surkhandarya Region	0,176	0,243	0,200	0,167	0,121	0,003	-0,173
Syrdarya Region	0,000	0,000	0,000	0,000	0,006	0,000	0,000
Tashkent Region	1,000	1,000	1,000	1,000	1,000	1,000	0,000
Fergana Region	0,955	0,844	0,844	0,650	0,201	0,060	-0,896
Khorezm Region	0,087	0,087	0,044	0,050	0,103	0,030	-0,057
Tashkent City	0,710	0,644	0,711	0,517	0,351	0,073	-0,637

According to the results of calculating the ecotourism potential rating based on the number of places in specialized accommodation facilities across the regions of the Republic of Uzbekistan, presented in Table 4, it was concluded that all regions except Tashkent province are classified under

the "One-Star" group in the ecotourism potential rating based on the number of places in specialized accommodation facilities. This is because the indicators for Tashkent province (classified as "Five-Star" with a rating of 1.000) represent 67.7% of the total national rating.

**Table 5**

**The number of visitors to specialized accommodation facilities across the regions of the Republic of Uzbekistan, in units of thousands**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	334,8	355,7	426,6	528,3	285,6	671,7	336,9
including:							
Republic of Karakalpakstan	6,2	6,7	7,1	6,8	4,1	11,7	5,5
Andijan Region	4,5	5,6	8,4	9,8	13,6	31,0	26,5
Bukhara Region	7,9	8,6	9,7	9,3	4,1	12,6	4,7
Jizzakh Region	20,6	21,0	23,3	24,4	14,6	25,9	5,3
Kashkadarya Region	11,5	8,3	9,6	13,2	8,9	18,1	6,6
Navoi Region	9,0	12,3	11,5	12,7	3,2	12,3	3,3
Namangan Region	50,2	56,8	56,7	70,9	34,2	33,6	-16,6
Samarkand Region	16,9	18,8	21,3	22,9	10,5	23,8	6,9
Surkhandarya Region	7,5	7,2	14,4	14,3	4,6	4,5	-3,0
Syrdarya Region	0,1	0,2	-	0,9	0,7	2,2	2,1
Tashkent Region	93,2	100,9	111,0	134,0	97,0	185,4	92,2
Fergana Region	61,8	65,4	94,1	152,7	49,1	239,0	177,2
Khorezm Region	4,0	4,0	5,7	5,5	3,0	17,8	13,8
Tashkent City	41,4	39,9	53,8	50,9	38,1	53,6	12,2

Analysis shows that from 2016 to 2021, the number of eco-tourists visiting specialized accommodation facilities in our country increased significantly. The number of eco-tourists visiting Uzbekistan for the purpose of utilizing services from specialized

accommodation facilities rose from approximately 336.9 thousand to 671.7 thousand, with a slight decrease noted in recent years to 334.8 thousand. During this period, the significant increase in the number of visitors to specialized accommodation

facilities in Fergana and Tashkent regions compared to other regions is noteworthy (see Table 5).

**Table 6**

**The Ecotourism Potential Rating Based on the Number of Visitors to Specialized Accommodation Facilities Across the Regions of the Republic of Uzbekistan<sup>6</sup>**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	0,256	0,250	0,239	0,243	0,205	0,193	-0,063
including:							
Republic of Karakalpakstan	0,066	0,065	0,013	0,039	0,035	0,040	-0,025
Andijan Region	0,047	0,054	0,026	0,059	0,134	0,122	0,074
Bukhara Region	0,084	0,083	0,038	0,055	0,035	0,044	-0,040
Jizzakh Region	0,220	0,207	0,167	0,155	0,144	0,100	-0,120
Kashkadarya Region	0,122	0,080	0,037	0,081	0,085	0,067	-0,055
Navoi Region	0,096	0,120	0,055	0,078	0,026	0,043	-0,053
Namangan Region	0,538	0,562	0,484	0,461	0,348	0,133	-0,406
Samarkand Region	0,180	0,185	0,148	0,145	0,102	0,091	-0,089
Surkhandarya Region	0,079	0,070	0,083	0,088	0,040	0,010	-0,070
Syrdarya Region	0,000	0,000	0,000	0,000	0,000	0,000	0,000
Tashkent Region	1,000	1,000	1,000	0,877	1,000	0,774	-0,226
Fergana Region	0,663	0,647	0,840	1,000	0,503	1,000	0,337
Khorezm Region	0,042	0,038	0,000	0,030	0,024	0,066	0,024
Tashkent City	0,444	0,394	0,457	0,329	0,388	0,217	-0,227

The results of the calculation conducted to evaluate the ecotourism potential rating based on the number of visitors to specialized accommodation facilities across the regions of the republic are presented in Table 6. According to the "Star-Rating" grouping of the 2021 indicators, the following conclusions were drawn:

- Tashkent city (0.217) is classified under the "Two-Star" group in terms of ecotourism potential rating based on the number of visitors to specialized accommodation facilities.

- Only Tashkent province (0.774) is classified under the "Four-Star" group, while Fergana province (1.000) is classified under the "Five-Star" group based on their respective ecotourism potential ratings.

- Apart from the above-mentioned three regions, all other regions of our country are classified under the "One-Star" group in terms of ecotourism potential rating based on the number of visitors to specialized accommodation facilities.

**Table 7**

<sup>6</sup> Authors' development based on research results

**The overall rating of the effectiveness of benefiting from ecotourism opportunities specialized in the development of places in the border areas of the Republic of Uzbekistan<sup>7</sup>**

Areas	Years						Difference (+/-)
	2016	2017	2018	2019	2020	2021	
Republic of Uzbekistan	0,308	0,309	0,282	0,304	0,208	0,190	-0,118
including:							
Republic of Karakalpakstan	0,159	0,155	0,076	0,079	0,098	0,084	-0,075
Andijan Region	0,146	0,159	0,111	0,145	0,217	0,164	0,018
Bukhara Region	0,082	0,081	0,013	0,055	0,021	0,039	-0,043
Jizzakh Region	0,227	0,217	0,212	0,195	0,115	0,090	-0,137
Kashkadarya Region	0,195	0,199	0,168	0,285	0,192	0,166	-0,028
Navoi Region	0,120	0,149	0,058	0,097	0,035	0,060	-0,059
Namangan Region	0,518	0,528	0,438	0,455	0,230	0,089	-0,429
Samarkand Region	0,368	0,384	0,360	0,452	0,149	0,168	-0,201
Surkhandarya Region	0,155	0,196	0,167	0,183	0,087	0,013	-0,142
Syrdarya Region	0,000	0,000	0,000	0,000	0,002	0,000	0,000
Tashkent Region	0,877	0,908	0,894	0,959	1,000	0,925	0,047
Fergana Region	0,873	0,831	0,895	0,883	0,349	0,535	-0,338
Khorezm Region	0,069	0,067	0,047	0,056	0,083	0,110	0,041
Tashkent City	0,525	0,454	0,511	0,409	0,339	0,218	-0,307

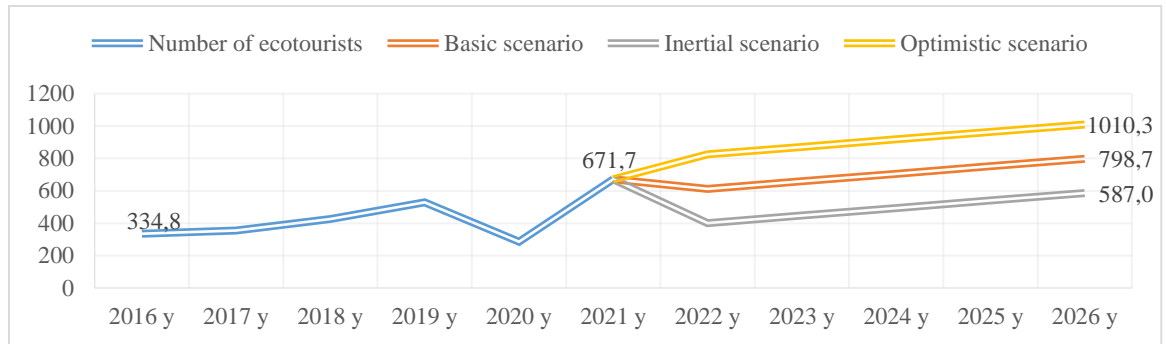
The overall ratings for the effectiveness of benefiting from ecotourism opportunities specialized in the development of places in the border areas of the Republic of Uzbekistan were calculated based on a formula 2, with a resulting score of, as indicated in the table 7 below. The general conclusions regarding the effectiveness of benefiting from ecotourism opportunities in places specialized in the development of the border areas for the year 2021 were grouped according to the "Star-Rating" as follows:

- The city of Tashkent (0.218) was classified under the "Two-Star" group in terms of the

effectiveness of visits to places specialized in development.

- The rating indicator of the Fergana region (0.535) showed that it belonged to the "Three-Star" group.
- Only the Tashkent region (0.925) in the republic was classified under the "Five-Star" group.
- It was determined that the effectiveness of visits to places specialized in the development of other border areas of our country, apart from the three mentioned above, belonged to the "One-Star" group.

<sup>7</sup> Authors' development based on research results



**Fig 1. Scenarios for the future development of ecotourism in Uzbekistan under the conditions of the country's Development Strategy, involving thousands of people<sup>8</sup>**

Between 2016 and 2021, the number of tourists visiting sanatorium-resort zones in our country increased from 334.8 thousand to 671.7 thousand people. Based on the basic scenarios developed for the future trends in the development of the volume of ecotourism in Uzbekistan during the medium term, it was determined that improvements to be implemented in developing ecotourism in the coming years and maintaining the development trends in this area would lead to a potential increase in the volume of ecotourism in Uzbekistan by 18.9 percent by 2026, reaching 797.7 thousand people (refer to figure 1).

Additionally, based on inversion scenarios developed considering factors that may negatively impact the development of the ecotourism sector during the forecast period, such as the degradation of the surrounding environment, the alignment of natural-climatic conditions, the insufficient training of highly skilled personnel in the ecotourism service sector, the deterioration of the quality

and pricing of ecotourism services, by 2026, it was estimated that the volume of ecotourism in Uzbekistan could decrease by 12.6 percent, potentially accommodating 587.0 thousand people (see Figure 1).

Looking ahead to 2026, optimistic scenarios were developed based on a proactive approach to increasing investment in developing the ecotourism sector, integrating innovative eco-technologies into the field, expanding the number of ecotourism routes, diversifying types of ecotourism products, and actively expanding the population's participation in this sector to enhance the effectiveness of national ecotourism utilization. According to these optimistic scenarios, it was projected that by 2026, the volume of ecotourism in the Republic could increase by 50.4 percent, reaching 1,010.3 thousand people (see Figure 1).

**Conclusion.** This study has explored strategies for increasing the efficiency of utilizing ecotourism potential in Uzbekistan through a comprehensive analysis of current practices, stakeholder perspectives, and

<sup>8</sup> Authors' development based on research results

global best practices. Utilizing a rating system that categorizes regions on a scale from 0.000 to 1.000, we introduced the "Star-Rating" method to systematically organize regions based on their ecotourism utilization levels. The ratings range from "One-Star" regions, indicating minimal utilization, to "Five-Star" regions, representing high utilization of ecotourism potential.

Our analysis revealed that while Uzbekistan possesses significant ecotourism resources, several challenges hinder the full realization of this potential. These challenges include inadequate infrastructure, limited awareness, and insufficient integration of local communities into the tourism framework. By addressing these challenges through targeted strategies, Uzbekistan can enhance its ecotourism sector and contribute to sustainable development. According to the results we developed the following recommendations:

1. Policy and Regulation Improvements: Developing comprehensive policies that support sustainable ecotourism, including environmental protection regulations, incentives for eco-friendly practices, and frameworks for community involvement.

2. Infrastructure Development: Investing in infrastructure improvements such as transportation, accommodations, and visitor centers to enhance the overall tourist experience and accessibility to ecotourism sites.

3. Community Involvement: Ensuring active participation of local communities in ecotourism initiatives, providing training programs, and fostering equitable profit-

sharing mechanisms to ensure that benefits are widely distributed.

4. Marketing and Promotion: Implementing effective marketing strategies to raise awareness of Uzbekistan's ecotourism potential among domestic and international tourists, highlighting unique natural and cultural attractions.

5. Training and Education: Establishing training programs for local guides, tourism operators, and community members to enhance service quality and promote sustainable tourism practices.

By aligning these strategies with the United Nations Sustainable Development Goals, Uzbekistan can foster a sustainable ecotourism industry that conserves natural and cultural heritage while promoting economic growth and community well-being. The "Star-Rating" method provides a clear framework for assessing and improving the utilization of ecotourism potential across different regions, guiding targeted interventions and fostering continuous improvement.

In conclusion, the efficient utilization of Uzbekistan's ecotourism potential holds significant promise for sustainable development. Through the implementation of strategic policies, infrastructure development, community engagement, and effective marketing, Uzbekistan can transform its ecotourism sector into a vibrant and sustainable industry. Future research should continue to monitor the impact of these strategies and explore additional ways to enhance the sustainability and efficiency of ecotourism in Uzbekistan.

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