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ECONOMIC AND GEOGRAPHICAL MECHANISMS FOR ENSURING ECOTOURISM SUSTAINABILITY IN THE ARAL SEA AND KHOREZM REGION: STRATEGIC APPROACHES AND PROSPECTS

Ganiyeva Shakhnoza Shavkatovna
Lecturer at the Department of Natural Sciences, Faculty of Exact and Natural Sciences, Urganch State Pedagogical Institute

Abstract

This study analyzes the economic and geographical factors influencing the development of sustainable ecotourism in the Aral Sea and Khorezm region.Despite the region's profound cultural legacy and high natural tourism potential, systemic infrastructure gaps and professional skill shortages remain primary obstacles to sustainable growth.To address these challenges, a mixed-method research framework was deployed, combining TOWS strategic analysis, the cluster approach, and the Cobb-Douglas production function, integrated with GIS-based spatial mapping.The empirical results indicate that the institutional configuration of agro-ecotourism clusters—specifically across livestock, horticulture, and aquaculture dimensions—alongside targeted state-provided financial interventions, are crucial catalysts for regional economic resilience and diversification.Furthermore, integrating ecological “green routes” with historical heritage sites can increase tourist retention time by up to 1.5 times.The paper outlines actionable policy frameworks, including green credit mechanisms, digital ecosystem integration, and international capacity-building programs, positioning the region as a sustainable destination on the global tourism map.

Keywords: Ecotourism, Aral Sea Region, Khorezm, agrotourism, cluster model, economic-geographical analysis, sustainable development.

1.Introduction.

Sustainable ecotourism has emerged as a critical socio-economic and ecological tool for rural development, particularly in regions navigating acute environmental transitions.For the Aral Sea basin and the contiguous Khorezm region, ecotourism represents a primary mechanism for ensuring long-term economic sustainability and resilience.The region possesses an exceptional convergence of dense historical heritage—exemplified by the UNESCO World Heritage site of Ichan-Kala in Khiva—and fragile yet unique natural landscapes, such as the Amu Darya River delta and the shrinking Aral Sea ecosystem.This unique dualism holds substantial intrinsic value for the competitive global tourism market.

However, the operationalization of this potential is severely constrained.Existing literature and empirical observations reveal a profound misalignment between the region's rich resource base and its operational capacity, primarily driven by under-developed infrastructure and acute deficits in specialized human capital.This structural imbalance significantly hinders the qualitative development of ecotourism products. While the ecological crisis of the Aral Sea demands alternative, non-extractive economic pathways, local stakeholders frequently lack the structural frameworks to capitalize on global tourism demand.

To bridge this gap, this paper aims to develop a comprehensive, context-specific economic-geographical model designed to optimize sustainable ecotourism management by leveraging regional spatial and economic characteristics.

2. Methodology

To capture both the qualitative strategic imperatives and quantitative production efficiencies of the region, this study utilizes an integrated, mixed-method economic-geographical research methodology:

TOWS (Advanced SWOT) Analysis: This strategic matrix was applied to systematically align the region's internal operational capabilities and institutional vulnerabilities with external global opportunities and macro-environmental threats, establishing targeted strategic pathways.

Cobb-Douglas Production Function: This quantitative econometric framework was adapted to evaluate the structural efficiency of capital and labor inputs utilized by local ecotourism entities, including private agricultural smallholders, eco-lodges, and regional tour operators.

Geographical Information Systems (GIS) Technologies: Using QGIS and ArcGIS software suites, spatial data profiling was conducted to map regional ecotourism routes, evaluate environmental carrying capacities, and designate optimal territorial zones for cluster deployment.

3.Results and Analysis

The empirical diagnostic reveals a critical paradox: while local stakeholders and rural entrepreneurs demonstrate a high conceptual awareness of ecotourism's economic utility, they lack the professional competencies, linguistic skills, and digital literacy required to access international distribution networks.

The primary findings of our economic-geographical optimization model highlight three core dimensions:

3.1. Agro-Ecotourism Cluster Configuration

To mitigate fragmented supply chains, we propose organizing local agricultural smallholders into three distinct, specialized agro-ecotourism clusters based on geographical zoning:

Livestock/Pastoral Clusters: Focusing on traditional nomadic lifestyles and camel-riding eco-routes.

Horticulture Clusters: Centered around the Khorezm oasis's historic melon and fruit cultivation techniques, offering hands-on agrotourism experiences.

Aquaculture Clusters: Utilizing the lakes of the Amu Darya delta for sustainable recreational fishing and birdwatching eco-lodges.

This structural classification directly enhances service standardization and scaling efficiency.

3.2. Infrastructure Deficits

Quantitative survey metrics indicate that physical and digital infrastructure remains the primary bottleneck.Over 70% of surveyed respondents identified the lack of high-speed digital connectivity, modernized transport roads, and reliable localized hospitality services as the foremost barriers to scaling tourist inflows.

3.3. Eco-Historical Spatial Integration

The spatial analysis demonstrates that tourists visiting Khorezm predominantly engage in short-term cultural sightseeing within Khiva, rarely venturing into the surrounding ecological landscapes.By physically and digitally integrating these historical monuments with ecological “green routes”, the spatial model indicates that the average length of stay for international tourists can be expanded by 1.5 times , significantly boosting local multi-sector expenditure.

4. Discussion and Strategic Recommendations

Developing sustainable ecotourism within a socio-ecologically vulnerable zone like the Aral Sea basin requires moving beyond passive resource dependency toward active, systemic institutional governance. Based on our empirical findings, the following three strategic vectors are recommended for policy implementation:

Institutional and Financial Instruments: The state must introduce targeted "green credits," low-interest loans, and fiscal subsidies specifically tailored for rural micro-enterprises looking to convert traditional farms into eco-certified homestays.

Capacity Building and Human Capital: Academic institutions and regional tourism boards must co-develop continuous professional development curriculum.These modules should focus on “ecotourism management”, environmental sustainability metrics, and international service standards.

Digital Ecosystem Integration: Developing a unified regional digital platform is crucial.This ecosystem should leverage GIS data, offer interactive virtual mapping, and provide centralized booking features to connect local cluster entities directly with international consumers, minimizing intermediary costs.

5. Conclusion

The revitalization of the Khorezm and Aral Sea region through ecotourism transcends conventional tourism development; it constitutes a strategic macro-economic driver for regional economic diversification and ecological adaptation.By systematically implementing agro-ecotourism clusters and fostering robust public-private-academic partnerships, this vulnerable region can successfully transition into a resilient, competitive destination on the global sustainable tourism map.Future research initiatives must focus on longitudinal monitoring of the empirical outcomes of this cluster model to refine its structural parameters over time.

References

1.Saidmamatov, O., Matyakubov, U., Rudenko, I., et al. (2020). Employing Ecotourism Opportunities for Sustainability in the Aral Sea Region: Prospects and Challenges.Sustainability (MDPI), 12(21), 9249. DOI: 10.3390/su12219249

2.Ibadullaev, A., et al. (2024). Agro-ecotourism clusters: Economic perspectives and regional development.World Agricultural Economics , 15(2), 45-58.

3.Xamidov, O. (2017). Ekoturizm menejmenti tizimi va uni rivojlantirish istiqbollari [Ecotourism Management System and Prospects for Its Development].PhD dissertation, Tashkent State University of Economics.

4.Anvarovich, S., et al. (2026). Regional Tourism Dynamics in the Lower Amu Darya Region.Asian Journal of Social and Human Research (AJSHR), 4(1), 112-125.

5.Kamaletdinov, U. (2018). O'zbekistonda ekoturizmning klaster modeli [Cluster Model of Ecotourism in Uzbekistan].Business Daily , 7(3), 22–29.