

EXPLORING THE STRUCTURAL RELATIONSHIPS BETWEEN URBAN TOURISM DEVELOPMENT AND SUSTAINABILITY: THE CASE OF ALMATY CITY, KAZAKHSTAN

Imanaly AKBAR^{1,2} , Gulnar KUBESSOVA^{3*} , Aiman SHAKEN¹ ,
Akmaral ZHAKYPOVA³ , Marat MAMADIYAROV⁴ , Achlan Fahlevi ROYANOW⁵ ,
Bauyrzhan PAZYLKHAIYR¹ , Gulden YRYSBAY¹ 

¹ Al-Farabi Kazakh National University, Department of Recreation Geography and Tourism, Almaty, Kazakhstan; akbar.imanaly@kaznu.kz (I.A.); Aiman.shaken@kaznu.edu.kz (A.S.); bauyrzhan.pazylkhaiyr@gmail.com (B.P.); Gulden9692@gmail.com (G.Y.)

² Continuing and Professional Education, University of California, Davis, CA, USA; iakbar@ucdavis.edu (I.A.)

³ K. Zhubanov Aktobe Regional University, Department of Geography and Tourism, Aktobe, Kazakhstan; gkubessova@zhubanov.edu.kz (G.K.); zhakypova1975@gmail.com (A.Z.)

⁴ Peoples' Friendship University named after Academician A. Kuatbekov, Shymkent, Kazakhstan; mmd-64@bk.ru (M.M.)

⁵ Tour and Travel Business Department, Politeknik Pariwisata Lombok, Indonesia; achlan@ppl.ac.id (A.F.R.)

Citation: Akbar, I., Kubessova, G., Shaken, A., Zhakypova, A., Mamadiyarov, M., Royanow, A.F., Pazylkhaiyr, B., & Yrysbay, G. (2026). Exploring the structural relationships between urban tourism development and sustainability: The case of Almaty city, Kazakhstan. *Geojournal of Tourism and Geosites*, 66(2spl), 1403-1416. <https://doi.org/10.30892/gtg.662spl13-1774>

Abstract: This study aims to investigate the relationships between urban tourism development and sustainable city growth in Almaty, Kazakhstan, by integrating economic, environmental, and socio-cultural dimensions through a Structural Equation Modeling (SEM) approach. A structured questionnaire survey was administered to 1136 residents between July and August 2025 to measure their perceptions of tourism impacts, satisfaction with urban life, and support for sustainable tourism. Confirmatory Factor Analysis (CFA) and SEM were employed to validate the hypothesized model. Results reveal that urban tourism development significantly enhances economic ($\beta = 0.397$, $p < 0.001$), environmental ($\beta = 0.307$, $p < 0.001$), and socio-cultural ($\beta = 0.373$, $p < 0.001$) dimensions of sustainability. These factors, in turn, positively influence residents' satisfaction ($\beta = 0.343$, $p < 0.001$), which subsequently strengthens their support for sustainable urban tourism. The findings highlight that economic and environmental benefits play a stronger role in shaping residents' satisfaction compared to socio-cultural aspects. The study contributes to the theoretical integration of the Social Exchange Theory and the Triple Bottom Line framework, offering empirical evidence on how urban tourism can act as a catalyst for sustainable development. Policy implications include promoting equitable, environmentally responsible, and community-oriented tourism planning strategies in Kazakhstan's urban centers.

Keywords: sustainable urban tourism development, Structural Equation Modeling (SEM), residents' satisfaction, environmental sustainability, socio-cultural impacts, economic diversification, Almaty City, Kazakhstan

* * * * *

INTRODUCTION

In the era of rapid globalization and urbanization, cities have emerged as pivotal arenas for achieving sustainable development. As urban areas continue to expand, the search for balanced approaches that integrate economic growth, environmental protection, and social well-being has become increasingly vital. Within this framework, urban tourism represents not merely an economic activity but also a strategic instrument for advancing environmental sustainability and socio-cultural cohesion (Mamirkulova et al., 2025; Ziari & Mosleh, 2025). Properly managed urban tourism can foster a harmonious relationship between visitors, residents, and the environment, enhancing overall urban resilience and livability.

Almaty, the largest metropolis and former capital of Kazakhstan, serves as an ideal case study to explore these interconnections. The city's unique geographical setting—surrounded by mountains and rich in natural and cultural resources—creates a dynamic environment where tourism and sustainability objectives intersect. Prior studies highlight that well-designed urban infrastructure and environmentally conscious planning can enhance place attachment, resident satisfaction, and urban well-being, forming a foundation for sustainable development. From an environmental standpoint, urban tourism can play a transformative role in promoting ecological stewardship. In destinations of high natural value, such as the Ili-Alatau National Park near Almaty, tourism-generated revenue supports biodiversity conservation and environmental monitoring initiatives (Issakov et al., 2025). Moreover, the growth of environmentally friendly or “white tourism” initiatives and partnerships contributes to greater public awareness, encouraging sustainable practices in energy and water use (Drăguleasa et al., 2023). Economically, the tourism sector serves as a key driver of diversification and inclusive growth.

* Corresponding author

The expansion of innovative tourism products—such as agritourism, gastronomic routes, and craft-based experiences—creates opportunities for small and medium enterprises, stimulating local entrepreneurship (Boiko et al., 2021). This localized economic activity not only generates income within the city but also benefits peripheral regions, establishing an interconnected and resilient urban economy. In the socio-cultural dimension, urban tourism reinforces local identity and nurtures civic pride. By promoting and preserving cultural heritage, tourism contributes to intergenerational knowledge transfer and enhances the attractiveness of the city for both residents and visitors. As noted by Richards (2021), cultural tourism fosters creativity, leadership, and hospitality culture, strengthening social capital and community cohesion. Additionally, tourism-related infrastructure improvements—such as the development of green spaces, cultural centers, and pedestrian-friendly zones—enhance the overall quality of urban life. Therefore, the main objective of this study is to investigate the structural relationships between urban tourism development and sustainability in Almaty City, focusing on its environmental, economic, and socio-cultural dimensions. The research seeks to provide a comprehensive understanding of how tourism can function as a strategic resource for sustainable urban development. The novelty of this work lies in its integrative approach, positioning tourism not merely as a sector of critique but as a catalyst for sustainable transformation within Almaty's urban ecosystem. Ultimately, the study's findings aim to offer actionable insights for policymakers, urban planners, tourism operators, and local communities striving to position Almaty as a model for sustainable urban tourism in Central Asia.

LITERATURE REVIEW

1. Positive Outcomes of Urban Tourism Development

Urban tourism has become a crucial catalyst for contemporary city development, producing multidimensional benefits that encompass economic prosperity, socio-cultural advancement, and environmental sustainability (Akbar, 2025; Sergeyeva, Akbar et al., 2025; Ziari & Mosleh, 2025). As cities increasingly integrate tourism into their broader urban planning and sustainability agendas, the sector contributes not only to financial growth but also to the creation of inclusive, vibrant, and resilient urban environments. Comparative studies conducted across Central Asia and the Middle East highlight that the integration of sustainable tourism practices and green infrastructure significantly enhances residents' quality of life while fostering cross-city collaboration and regional connectivity (Issakov et al., 2023; Mamirkulova et al., 2025).

In this sense, urban tourism functions as both an economic engine and a policy instrument, enabling cities to balance development pressures with the need for environmental conservation and cultural preservation. Ultimately, the positive impacts of urban tourism extend beyond traditional economic metrics—strengthening community cohesion, promoting intercultural dialogue, and reinforcing environmental responsibility—thereby positioning tourism as a transformative force in achieving the broader goals of sustainable urban development.

Urban tourism is one of the most dynamically developing sectors of modern urban economies. It has a significant impact on the socio-economic structure, cultural image and environmental development of cities. Studies by Glaeser & Gottlieb (2006) and Ashworth & Page (2011) have highlighted the contribution of urban tourism to economic growth, job creation and infrastructure development. In addition, scientific studies published in recent years provide a deeper understanding of the economic impacts of urban tourism.

For example, de Bruyn & Meyer (2022) analyzed the impact of tourism on local economic development and entrepreneurship. Cerisola & Panzera (2021) studied the role of creativity and cosmopolitan identity in the economic growth and regional development of cultural cities. Bellini et al. (2016) examined the relationship between urban tourism and urban development and highlighted the importance of integrated policies. KARIMOV et al. (2023) studied the impact of transport infrastructure on the development of international tourism in Uzbekistan. Stipanović et al. (2019) analyzed the impact of cultural and creative industries on innovation in urban tourism using the example of the city of Rijeka. These studies show that urban tourism contributes to economic development, job creation, infrastructure improvement, and the preservation of cultural values. Thus, urban tourism is an important tool for sustainable economic development.

Urban tourism is increasingly recognized for its role in promoting environmental sustainability within cities. Recent studies highlight how tourism development encourages the adoption of green technologies, improvement in waste management systems, and the creation of eco-parks and green belts, thereby enhancing urban ecological resilience (Emamnia, 2023). Moreover, effective management of tourist flows contributes to the development of sustainable transport systems, including pedestrian zones, bicycle infrastructure, and public transport networks, which collectively reduce the city's carbon footprint. Environmental education programs accompanying tourism initiatives further foster a culture of environmental protection among residents and tourists, leading to improved urban life quality (Zheng et al., 2017). Environmental sustainability is a critical dimension of urban tourism development, as tourism-related activities can accelerate landscape transformation and ecological pressure if not properly managed. Empirical evidence from protected and sensitive environments demonstrates that landscape change is strongly conditioned by both natural processes and human-induced pressures (Udahogora et al., 2021). These findings underline the importance of incorporating environmental monitoring indicators into urban tourism sustainability models, particularly in ecologically vulnerable cities such as Almaty.

In addition to these findings, recent literature provides further insights into the intersection of urban tourism and environmental sustainability. For instance, studies have explored the impact of community-based tourism on residents' quality of life and their support for sustainable tourism practices (Wani et al., 2024). Other research has examined the role of residents' perceptions of tourism development in influencing their commitment to environmental conservation and participation in eco-friendly behaviors (Tang et al., 2021). Additionally, investigations into the effects of tourism experiences on tourists' environmental attitudes and behaviors underscore the importance of sustainable tourism practices

in shaping ecological consciousness (Nikkhah et al., 2021). Collectively, these studies underscore the significant role of urban tourism in fostering environmental sustainability. By integrating green technologies, promoting sustainable transport systems, and implementing environmental education initiatives, urban tourism not only enhances the ecological quality of cities but also contributes to the development of a more environmentally conscious society.

Urban tourism also contributes to the socio-cultural transformation of the city, revitalizing local cultural heritage and strengthening the cultural capital of society. The development of tourism encourages cities to preserve their historical monuments and traditions and promote them internationally (Richards, 2018). This trend leads to a revival of cultural events, festivals, the revitalization of public spaces, and an increased sense of civic pride. In this regard, recent evidence from Kazakhstan confirms that “cultural heritage and values not only shape urban identity but also significantly contribute to internal and inbound tourism,” reinforcing the role of heritage as a core socio-cultural and economic asset of urban destinations (Berdenov et al., 2025). Recent studies have highlighted the multifaceted socio-cultural impacts of urban tourism, demonstrating its crucial role in shaping the cultural and social landscape of cities. By preserving and promoting cultural heritage, especially through the integration of digital technologies to enhance visibility and accessibility, urban tourism helps maintain the unique identity of cities (Nguyen et al., 2023). At the same time, it revitalizes public spaces, fostering civic pride and improving the overall quality of urban life (Collins, 2016). Furthermore, the increased interaction and dialogue between residents and visitors facilitated by urban tourism enhances social inclusion, promotes cultural understanding, and strengthens tolerance and cohesion within diverse urban communities (Aytas et al., 2022).

Urban tourism also plays a key role in the cultural revitalization and preservation of heritage in cities, as it provides economic incentives for the restoration of historic sites and the preservation of traditional arts and crafts, which in turn strengthens civic pride and cultural continuity (Wall, 2023). In addition, the arrival of international tourists enhances cultural exchange and contributes to the development of tolerance and cosmopolitan values in urban spaces (Larsen & Urry, 2011). Such interaction makes cities more open and inclusive living environments. In addition, tourism allows local communities to express their culture and participate in shaping the image of the city, strengthening social capital and collective identity (Briedenhann & Wickens, 2004). Thus, the preservation of cultural heritage, cultural exchange and community activism, as interrelated factors, form the socio-cultural foundation of sustainable urban tourism.

2. Residents’ satisfaction with sustainable urban tourism development

In the sustainable development of urban tourism, resident satisfaction is considered a key indicator, as the long-term success of tourism is directly related to the acceptance and support of the local community (Nunkoo & Gursoy, 2012; Sharpley, 2014). Studies have shown that residents’ attitudes towards tourism depend on the balance of economic, socio-cultural and environmental impacts (Andereck & Nyaupane, 2011; Kim et al., 2013). While tourism creates jobs and develops local businesses, it can also have negative impacts, such as increasing the cost of living (Woo et al., 2015). In the socio-cultural sense, tourism contributes to the preservation of cultural heritage and the revitalization of public spaces, but it also has negative impacts, such as “tourist colonization” and the creation of spaces inaccessible to local residents (Stylidis et al., 2014). In environmental terms, while the development of green infrastructure and sustainable transport systems increases the positive perception of tourism, the increase in pressure on resources and noise has a negative impact (Choi & Sirakaya, 2006).

In addition, recent studies have shown that the participation of residents in the decision-making process increases their trust and satisfaction with tourism (Chauhan, 2022; Gursoy et al., 2019; Jia et al., 2023).

From the perspective of social exchange theory Ap (1992), residents will actively support tourism if they perceive that the benefits they receive from it outweigh the costs. In this regard, the implementation of environmental initiatives, the preservation of cultural heritage, and the fair distribution of economic benefits are considered to be the main prerequisites for sustainable support (Kim et al., 2021; Zhao et al., 2023). Thus, the level of acceptance and participation of residents in tourism is an important social mechanism that ensures the sustainable development of urban tourism.

3. Residents’ support for urban tourism development

Community support is a key prerequisite for the long-term sustainability and success of urban tourism (Nunkoo & Gursoy, 2012; Sharpley, 2014). Research based on Social Exchange Theory Blau (2017) and Homans (1958) suggests that community attitudes toward tourism are influenced by the perceived benefits and costs of tourism. If community members believe that the economic and social benefits of tourism, such as jobs, cultural heritage preservation, and public infrastructure, outweigh the negative impacts (such as increased cost of living, congestion, and noise), their level of support will increase (Andereck & Nyaupane, 2011; Kim et al., 2013). In addition, equitable distribution of economic benefits and cultural and environmental sustainability of tourism will strengthen community trust in tourism (Gursoy & Rutherford, 2004; Li et al., 2021). Recent research emphasizes the importance of the concept of “social license” in tourism management - that is, the higher the level of public participation and information in decision-making processes, the greater their trust and support for tourism (Byrd et al., 2009). Such participation allows us to feel that tourism is developing fairly, openly, and in the public interest. At the same time, initiatives aimed at environmental responsibility and the protection of cultural heritage increase the moral and emotional satisfaction of residents, turning passive support into active participation (Choi & Sirakaya, 2006; Jiang et al., 2023). Therefore, public participation in tourism and its fair perception are key factors in ensuring the social sustainability of urban tourism.

4. Conceptual Model and Hypotheses

This study presents a comprehensive conceptual model in Figure 1, which aimed at capturing residents’ support for urban tourism development. The model examines the impact of three main dimensions of urban tourism (economic,

environmental, and socio-cultural) on residents' satisfaction and their support for tourism. Below, a brief overview of each hypothesis of the model is provided, supported by several data and studies from recent years.

H1: The development of urban tourism has a positive impact on the economic development of a city.

This hypothesis is widely supported. Studies by Tan et al. (2025) show that urban tourism directly contributes to the local economy. This impact is realized through job creation, the development of small and medium-sized businesses, increased tax revenues, and increased investment in infrastructure. For example, international tourist centers such as Vienna or Singapore are clear examples of how tourism contributes to economic growth and the diversity of business activities.

H2: The development of urban tourism has a positive impact on the protection of the city's environment.

This hypothesis demonstrates the ecological significance of tourism. While tourism growth may exert pressure on urban ecosystems, numerous studies demonstrate that well-managed urban tourism can actually contribute to environmental protection and sustainability. Urban tourism often encourages city governments to adopt green infrastructure, improve waste management, and enhance public transport systems, thereby reducing the overall ecological footprint of cities. For example, Emamnia (2023) found that urban tourism initiatives in European cities led to the expansion of eco-parks, pedestrian zones, and bicycle-friendly areas, contributing to lower air pollution and better urban microclimates. Similarly, Becken & Hay (2007) argue that tourism demand often accelerates the transition to renewable energy and motivates cities to implement smart energy management systems in hotels and transport.

H3: The development of urban tourism has a positive impact on the preservation of the socio-cultural value of a city.

This hypothesis emphasizes the role of tourism in preserving and enhancing culture. Studies by Richards (2018) show that tourism demand stimulates investments in the restoration of historical monuments, the support of traditional arts and crafts, and the strengthening of local culture and aesthetic sense. In cities such as Prague, tourism is a major driver of cultural heritage preservation (Roncak, 2023).

H4: The economic development of a city has a positive impact on the satisfaction of residents with the development of urban tourism.

This relationship is based on Social Exchange Theory. As residents directly experience the economic benefits of tourism (new jobs, improved infrastructure, and thriving local businesses), their overall satisfaction with tourism development increases (Nunkoo, 2016). Economic benefits are a key factor in compensating residents for the costs of tourism.

H5: Environmental preservation of a city positively affects residents' satisfaction with urban tourism development.

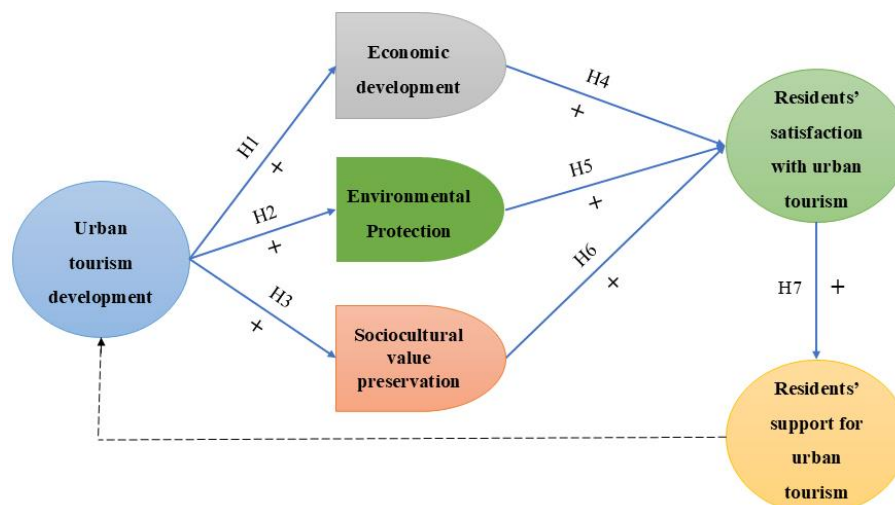


Figure 1. Theoretical model (Sustainable Urban Tourism Development), direct paths

Environmental quality plays a crucial role in shaping residents' perceptions and satisfaction with tourism development. Studies consistently show that when a city maintains a clean, green, and healthy environment, residents are more likely to perceive tourism positively and to support its continued growth. Environmental preservation enhances quality of life, reduces urban stress, and strengthens residents' emotional attachment to their city (Deery et al., 2012; Stylidis et al., 2014).

H6: Maintaining the socio-cultural value of a city positively affects residents' satisfaction with urban tourism development.

When residents' cultural identity and sense of style are preserved and enhanced, they will have a positive attitude towards tourism. Restoring cultural heritage, preserving traditional public spaces, and strengthening the local sense of style will increase residents' sense of pride, which will positively affect their satisfaction with tourism (Andereck & Nyaupane, 2011; Kim et al., 2013).

H7: Residents' satisfaction will positively affect their support for urban tourism development.

The last hypothesis in this model indicates the main reason for residents' support. Many empirical studies like Byrd et al. (2009) have proven that satisfied residents are more likely to support tourism policies and their further development. Satisfaction is a key prerequisite for this support, and support is a key indicator of the success of sustainable urban tourism. Previous studies in Kazakhstan indicate that residents' perceptions significantly mediate the relationship between urban

planning strategies and sustainability outcomes (Sakhatbekovna et al., 2024). Accordingly, this study hypothesizes that urban tourism development positively influences perceived urban sustainability through improvements in infrastructure, environmental management, and public services.

In conclusion, the above hypotheses based on the research indicate that the success of urban tourism development depends on balancing the economic, environmental, and socio-cultural outcomes it brings to the lives of residents. To ensure public support, tourism policy must include a sustainable and balanced approach, taking into account all three aspects.

MATERIALS AND METHODS

1. Research area overview: A brief overview of Turkistan City, Kazakhstan

Almaty is the largest metropolis of the Republic of Kazakhstan and a city of republican significance. As shown in Figure 2, Almaty is Geographically situated on the northern slopes of the Ili Alatau, at an elevation of approximately 700–900 meters above sea level. The total area of the city is about 752 km², and its administrative structure consists of 8 districts (QAZSTAT, 2025). Although Almaty transferred the status of the capital to Astana in 1997, today it remains the economic, financial, educational and cultural center of the country. According to official statistics, in 2025 the population of Almaty exceeded 2.3 million people, which is about 12% of the population of Kazakhstan (Bureau of National Statistics, 2025). More precisely, according to official statistics, the population of the city was 2,244,824 people on April 1, 2024. As of this date, the same statistics indicate that there were 1,043,597 men and 1,201,227 women.

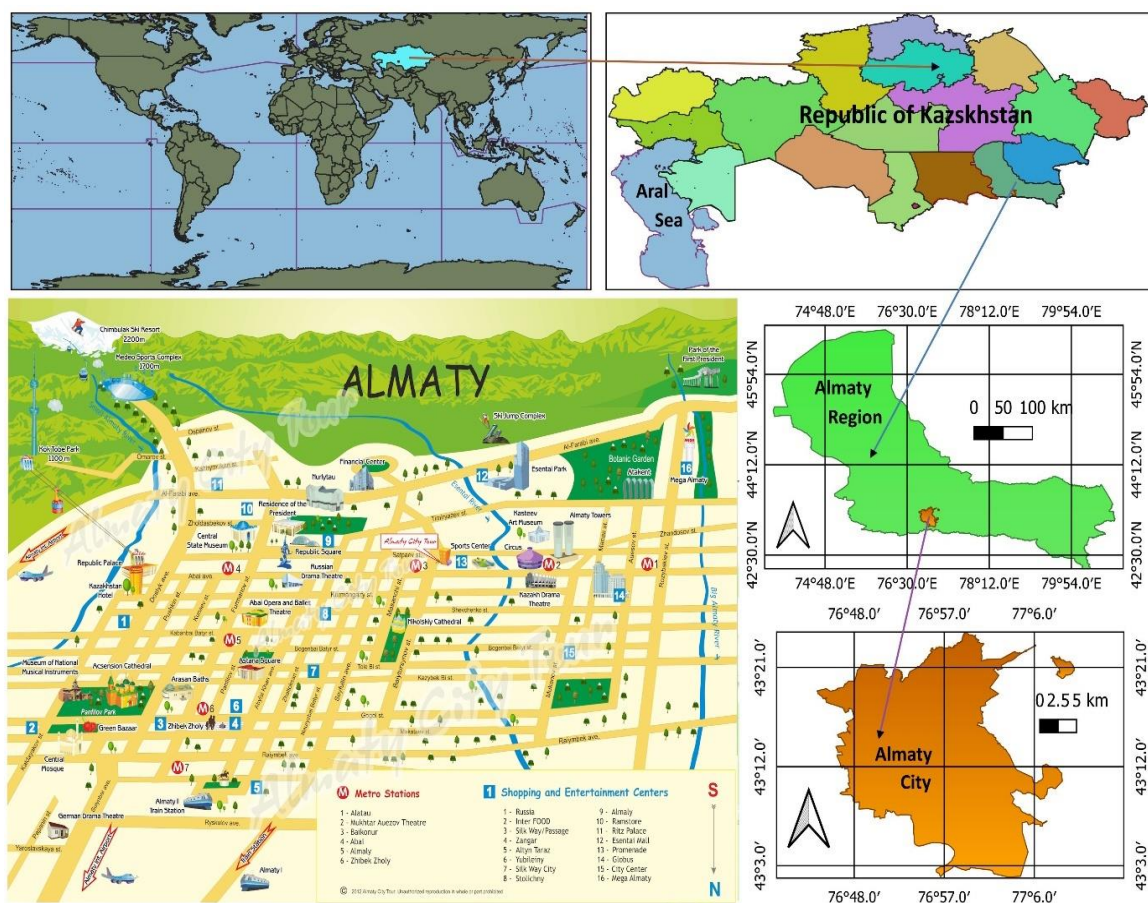


Figure 2. The geographical location and tourist recreational map of Almaty City
(Created by Imanaly Akbar based on the tourist recreational map of Almaty from city-tour.kz)

Also, according to statistics as of January 1, 2024, the proportion of children under the age of 18 in the total population of the republic was 665,430 people (stat.gov.kz). According to this report, 1,579,394 economically active people settled in Almaty. The steady growth of the population over the past decade has increased the pace of urbanization and increased the burden on housing, transport and environmental infrastructure. The city produces 20.8% of the country's gross domestic product (GDP) (QAZSTAT, 2024), so Almaty is considered a leading driver of the economy of Kazakhstan. The city has a high concentration of higher education and scientific potential. It is home to Al-Farabi Kazakh National University, Satpayev University, KIMEP University and other leading scientific centers. These educational institutions will allow for the development of research and innovation projects, as well as scientific support for the city's "smart" infrastructure (Deda et al., 2024).

Tourism is one of the most important sectors of Almaty's economy. According to 2024 data, more than 1.5 million domestic and international tourists visit the city annually (KTNC, 2024). Facilities such as the Medeu ice rink, Shymbulak mountain resort, Kok-Tobe and Arbat make Almaty one of the most attractive urban tourist destinations in Central Asia.

Currently, the city is implementing comprehensive reforms in the areas of transport, energy efficiency, digitalization and public participation within the framework of the "Almaty 2050" strategy and the Smart Sustainable City initiative (UNECE, 2023). The combination of these factors makes Almaty an exemplary and relevant research area for the study of sustainable development, urban ecology and smart city systems.

2. The level of development of urban tourism in Almaty

Almaty is one of the most developed urban and tourist centers in Kazakhstan. The city is developing tourism as one of the leading sectors of the country's economy. This process is clearly manifested in the expansion of tourism infrastructure, increased international relations, and the integration of transport and service sectors. According to official statistics, the total number of tourists visiting Almaty in 2024 amounted to 1.56 million people, of which about 38% were foreign visitors (KTNC, 2024). This figure is 24% higher than in 2019. The number of accommodation facilities in the city amounted to 523 facilities in 2023, and the number of overnight stays in hotels and hostels was about 3.9 million (QAZSTAT, 2024).

Scientific studies confirm that tourism in Almaty has a positive impact on the socio-economic structure of the city. As Emannia (2023) and Nyong et al. (2024) notes, urban tourism often encourages city governments to adopt green infrastructure, improve waste management, and enhance public transport systems. In addition, according to the city administration, in 2024 more than 40 thousand people worked in the tourism sector, which constitutes a significant part of the service market. In economic terms, tourism accounts for 4.8% of the GNP of Almaty (QAZSTAT, 2024). This indicator proves that tourism is making a steady contribution to the city's economy. At the same time, urban tourism is identified as a priority area in the city's "Almaty 2050" strategy. This strategy sets the tasks of forming a city brand through the development of tourism, digitizing the transport system and increasing environmental safety (AlmatyAkimat, 2023).

Ecological and cultural tourism areas are also actively developing. In recent years, such sites as the Medeu-Shymbulak cluster, Kok-Tobe, Arbat and Panfilov Park have become major centers of attraction for domestic and international tourists. This trend contributes to the fact that the tourist flow is not seasonal, but rather stable throughout the year.

From a scientific point of view, the urban tourism system of Almaty is developing through economic (employment, income), socio-cultural (activity of public life), and environmental (green spaces and infrastructure) dimensions (Scott et al., 2012). The complex of these factors allows Almaty to become an exemplary model of sustainable urban tourism in Central Asia. When analyzing the data presented in Figure 3, several clear trends emerge in Almaty's tourism dynamics for the period from 2015 to 2024. In general, over the past ten years, the total number of visitors to the city showed a steady growth trend. If in 2015 the total number was 721 thousand people, in 2024 this figure increased to 2,340 thousand people, that is, an increase of approximately 3.2 times was observed. However, this growth was not linear, especially in 2020, when a significant decline was observed due to the COVID-19 pandemic (1,313 thousand people). Analysis of tourist flows by composition reveals a difference between domestic and foreign tourists. The number of domestic tourists remained at a high level throughout the period, and the main growth is observed from 2021 (in 2021 - 898 thousand, in 2024 - 1,877 thousand people). This indicates the stability and development potential of domestic tourism. The number of foreign tourists grew slowly from an initially low level (296 thousand people in 2015) and reached its peak (710 thousand people) in 2019. After a sharp decline in 2020 (356 thousand people), a rapid recovery of foreign flows has been observed since 2022, and in 2024 their number reached a historical maximum (over 710 thousand people, exact data are shown in the graph). This indicates a recovery in the international tourism sector and an increase in the city's competitiveness in the global market.

In conclusion, the tourism sector of Almaty has shown a significant growth trend in 2015-2024, especially in the field of domestic tourism. Despite external stopping factors (pandemic), the rapid recovery of tourist flows and the establishment of new records confirm the sustainability of the city's tourism and its potential in various markets.



Figure 3. The number of tourists visiting Almaty City from 2015 to 2024 (Data Sources: <https://tengrinews.kz>, <https://www.kt.kz>, <https://dknews.kz>, <https://qazaqstan3d.kz> and <https://www.inform.kz>)

3. Study context

The study was conducted in Almaty City, the largest metropolitan area and former capital of Kazakhstan, located in the southeastern part of the country at the foothills of the Trans-Ili Alatau Mountains. Almaty is considered the economic, cultural, and tourism hub of Kazakhstan, attracting both domestic and international visitors throughout the year. The city is known for its diverse urban landscape, rich cultural heritage, and proximity to major natural attractions such as the Medeu Ice Rink, Shymbulak Ski Resort, and Big Almaty Lake, which together make it a center for urban and eco-tourism development.

This research focuses on exploring the positive influence of urban tourism development on sustainability within Almaty City. The study's target population includes local residents representing different districts of the city, whose perceptions and experiences are essential for understanding the social, economic, and environmental impacts of tourism growth. As a rapidly developing urban center, Almaty provides a representative example of how tourism can contribute to sustainable urban planning and improve residents' quality of life in emerging cities across Central Asia.

4. Research Instrument and Measures

This study utilized a structured questionnaire as the main data collection instrument to examine the positive influence of urban tourism development on sustainability in Almaty City, Kazakhstan. The questionnaire method was chosen for its effectiveness in obtaining quantitative data from a large sample, allowing for the application of Structural Equation Modeling (SEM) to test the relationships among the proposed constructs. The design of the questionnaire was guided by an extensive review of literature on urban tourism development, sustainable city planning, and residents' perceptions of tourism impacts. The main constructs included: urban tourism development, perceived sustainability impacts (economic, sociocultural, and environmental), residents' satisfaction with urban life, and support for sustainable tourism development. All measurement items were adapted from previously validated scales and modified to fit the urban and socio-cultural context of Almaty. The questionnaire consisted of two sections: (1) Demographic Information, covering gender, age, education level, ethnicity, and tourism income proportion; and (2) Main Constructs, measured using a 5-point Likert scale (1 = Strongly Disagree, 5 = Strongly Agree). The constructs captured:

Urban Tourism Development – improvement in urban infrastructure, transport accessibility, and recreational facilities;

Sustainability Impacts – perceived economic benefits, sociocultural enrichment, and environmental preservation;

Residents' Satisfaction – overall well-being, living conditions, and community engagement;

Support for Sustainable Tourism – willingness to participate in or promote sustainable tourism practices.

A pilot survey involving about 100 residents of Almaty was conducted to test reliability and clarity. After minor refinements, all constructs demonstrated strong internal consistency with Cronbach's Alpha values exceeding 0.8, confirming the reliability and validity of the instrument for full-scale data collection.

5. Sampling Representativeness Justification

The total economically active population of Almaty City is estimated at 1,579,394 individuals (QAZSTAT, 2024). To ensure that the survey results are statistically representative of this population, the sample size of $n = 1136$ respondents was determined based on standard sampling theory and confidence interval calculations (Gordon, 1987), which is widely used in social science and tourism research.

According to Cochran's sample size formula (by Cochran, Leslie Kish, and others) for a finite population:

$$n = \frac{Z^2 \times p(1-p)}{e^2} \times \frac{N}{N - 1 + \frac{Z^2 \times p(1-p)}{e^2}}$$

where:

- $N = 1,579,394$ (total economically active population),
- $Z = 1.96$ (confidence level of 95%),
- $p = 0.5$ (maximum variability assumption),
- $e = 0.03$ (acceptable margin of error, 3%).

Substituting these values gives a required sample size of approximately 1,067 respondents. Since the actual survey collected 1,136 valid responses, the achieved sample exceeds the minimum statistically required size. This ensures a 95% confidence level and a margin of error below 3%, which is sufficient for reliable generalization to the entire economically active population of Almaty. Furthermore, the demographic distribution of the sample (gender, age, education, and ethnicity) closely reflects the city's official demographic structure reported by the Bureau of National Statistics. Such alignment between the sample and population characteristics strengthens the representativeness of the data and enhances the validity of inferences drawn from the findings. Therefore, the sample of 1,136 respondents can be considered statistically representative of Almaty's economically active population, providing a robust empirical basis for the study's conclusions.

6. Data Collection

This study originated from an analysis of sustainable urban tourism development in Kazakhstan's cities, with a particular focus on Almaty. Prior field observations informed the design and administration of the primary survey. Data collection was conducted over a one-month period, from July 25 to August 22, 2025, targeting residents of Almaty. A total of 1,136 valid responses were obtained from approximately 1.5 million inhabitants, ensuring a 95% confidence level and a margin of error below 3%. The measurement instrument was developed through an extensive literature review on sustainable urban planning and tourism development. Initially, over 60 indicators were identified and evaluated by an

expert panel comprising tourism scholars and representatives from the local urban planning department. Following expert review, the list was refined to 48 indicators, which were included in the questionnaire.

The self-administered survey consisted of two sections. The first section collected respondents' demographic information (gender, age, ethnicity, education, and tourism-related income). The second section assessed perceptions of sustainable urban tourism development across several dimensions—economic, environmental, and sociocultural impacts, as well as residents' satisfaction and support for tourism development—using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). Questionnaires were distributed in public areas with high pedestrian flow, such as parks, shopping malls, and recreational sites. Quantitative methods were primarily employed for data analysis. The data were first subjected to Principal Component Analysis (PCA) to reduce multicollinearity and eliminate items with high or low error variances. After refinement, 32 indicators were retained for subsequent analyses (Table 2).

The Composite Reliability (CR) and Average Variance Extracted (AVE) values were computed using the following formulas (Developed by Jöreskog and by Fornell & Larcker):

$$CR = \frac{(\sum \lambda)^2}{(\sum \lambda)^2 + (\sum e)}, AVE = \frac{\sum \lambda^2}{n}, \text{ (where } L \text{ denotes standardized loadings and } e = 1 - \lambda^2 \text{).}$$

Confirmatory Factor Analysis (CFA) was conducted using AMOS 25.0 to assess model fit based on standard indices (χ^2/df , NFI, TLI, CFI, and RMSEA). Finally, Structural Equation Modeling (SEM) tested the hypothesized relationships among constructs, with statistical significance evaluated using p-values, Critical Ratios (CR), and standardized β coefficients.

7. Demographic characteristics of respondents

As shown in Table 1, the demographic profile of the respondents in Almaty City shows a balanced representation across key characteristics. Female participants slightly outnumber males, accounting for 51.60% and 48.40% respectively, which reflects the general demographic pattern in Kazakhstan where women are more numerous, especially in urban areas.

In terms of age, the survey is dominated by young (45.18%) and middle-aged (36.76%) respondents, while 18.06% belong to the elder group, indicating that most participants are economically active and socially engaged, thus ensuring more reliable responses regarding urban tourism and city development. Regarding ethnicity and education, Kazakh nationals form the majority (72.77%), followed by Russians (19.15%) and other ethnic groups (8.08%), a composition consistent with the demographic structure of southern Kazakhstan. Education levels are relatively balanced, with 53.48% of respondents having middle (school or college) education and 46.52% holding higher (university or above) degrees. This high educational attainment suggests that the respondents are well-informed, which likely enhances the quality and validity of their answers.

Table 1 also show that tourism contributes differently to the yearly family income of Almaty residents. Specifically, 5.62% of respondents reported no income from tourism, while 42.84% indicated that tourism accounts for 1%–20% of their annual income, suggesting it serves mainly as a supplementary source. Another 33.48% of participants stated that tourism provides 21%–60% of their family income, and 18.06% rely heavily on tourism, with 61%–100% of their income coming from this sector. Overall, the data presented in Table 1 indicate that most respondents receive at least some income from tourism, highlighting its moderate but important contribution to household welfare and the local economy.

Table 1. Details of resident sample responses (n = 1136)

	Characteristics	Residents of Almaty City (n=1136)	
		Frequency (people)	Percentage (%)
Gender:	Male	551	48.40
	Female	585	51.60
Age (years):	Young (18–34)	513	45.18
	Middle age (35–54)	418	36.76
	Elder (≥ 55)	205	18.06
Ethnicity:	Kazakh	827	72.77
	Russian	217	19.15
	Other	92	8.08
Education:	Middle (school or college)	608	53.48
	High (university or above)	528	46.52
The tourism income in your yearly family income	0%	64	5.62
	1%–20%	487	42.84
	21%–60%	380	33.48
	61%–100%	205	18.06

RESULTS

1. Reliability and Validity Testing

To assess the reliability and validity of the measurement model, both convergent and discriminant validity tests were conducted using Confirmatory Factor Analysis (CFA). Reliability was evaluated through Cronbach's alpha (α) and Composite Reliability (CR), while validity was examined using Average Variance Extracted (AVE) and factor loadings (λ) (Hair et al., 2016). All constructs used in the proposed Structural Equation Model (SEM) demonstrated satisfactory convergent and discriminant validity, as shown in Table 2. The CFA results confirmed that all standardized factor loadings exceeded the recommended threshold of 0.50, indicating adequate indicator reliability. The AVE values for all latent constructs were greater than 0.50, supporting good convergent validity, while the CR values were above 0.70, confirming

internal consistency and construct reliability. The overall model fitness was further supported by the Kaiser–Meyer–Olkin (KMO) measure of sampling adequacy (0.907) and Bartlett’s Test of Sphericity ($\chi^2 = 735.166$, $p < 0.001$, $df = 486$), confirming the suitability of the dataset for factor analysis. Cross-loading items were removed during the Exploratory Factor Analysis (EFA), ensuring that each observed indicator loaded strongly on its intended construct without significant overlap.

Table 2. Descriptive statistics and measurement model results (n = 425) (Notes: L (Factor Loading); Cr. a (Cronbach's alpha); C-R (Composite Reliability); AVE (Average Variance Extracted), and *** significant at 0.001 level)

Constructs and Indicators	Mean	St. dev.	Model Results				
			$\lambda > 0.7$	Cr. a > 0.7	C- R > 0.7	AVE > 0.5	p- Value
Urban Tourism Development	3.788			0.898	0.901	0.566	
UrbanTD_1. Domestic and international tourist arrivals to the city have increased.	3.79	1.260	.752				***
UrbanTD_2. Tourism revenue contributing to the city’s economy has increased.	3.70	1.216	.677				***
UrbanTD_3. The number, quality, and occupancy rates of hotel facilities have improved.	3.43	1.499	.637				***
UrbanTD_4. Tourist visits to cultural, historical, natural, and modern attractions have increased.	3.34	1.285	.747				***
UrbanTD_5. The efficiency of urban transport and logistics for tourists has improved.	4.07	1.291	.817				***
UrbanTD_6. The frequency of festivals, exhibitions, sports, and cultural events has increased.	3.93	1.283	.782				***
UrbanTD_7. The availability of digital maps, mobile applications, online booking, and smart information services has improved.	3.85	1.351	.836				***
Economic Impacts	3.815			0.935	0.914	0.680	
EcI_1. Urban tourism fosters sustainable and diverse local employment opportunities.	3.90	1.364	.840				***
EcI_2. Urban tourism increases demand for local products and services.	3.96	1.185	.789				***
EcI_3. Urban tourism drives improvements in public facilities and services.	3.88	1.197	.817				***
EcI_4. Urban tourism reduces economic dependence on a single sector.	3.78	1.235	.854				***
EcI_5. Urban tourism strengthens the city’s fiscal base through tax revenues.	3.60	1.253	.822				***
EcI_6. Urban tourism attracts domestic and foreign investment.	3.76	1.319	.916				***
Environmental Impacts	3.744			0.866	0.868	0.621	
EnI_1. Urban tourism encourages the adoption of renewable energy and eco-friendly technologies.	3.74	1.165	.786				***
EnI_2. Urban tourism supports the preservation and enhancement of green spaces.	3.79	1.094	.760				***
EnI_3. Urban tourism promotes sustainable transport options.	3.72	1.130	.752				***
EnI_4. Urban tourism contributes to the conservation of natural and built environments.	3.72	1.348	.851				***
Sociocultural Impacts	3.899			0.835	0.836	0.562	
SCI_1. Urban tourism supports the preservation of cultural heritage, traditions, and historic sites.	3.80	1.178	.742				***
SCI_2. Urban tourism increases residents’ access to cultural events and activities.	3.83	1.097	.717				***
SCI_3. Urban tourism improves residents’ quality of life through better amenities, recreation, and services.	3.90	1.156	.710				***
SCI_5. Urban tourism enhances residents’ pride in their city as a destination.	4.07	1.205	.823				***
Residents’ satisfaction with urban tourism development	3.652			0.882	0.880	0.550	
RSat_5. I am satisfied that urban tourism has improved quality of life through better amenities, services, and infrastructure.	3.86	1.345	.783				***
RSat_6. I am satisfied that urban tourism contributes to preserving local traditions and cultural heritage.	3.56	1.212	.742				***
RSat_7. I am satisfied that urban tourism ensures accessible information on policies, impacts, and long-term strategies.	3.50	1.341	.742				***
RSat_8. I am satisfied that urban tourism promotes environmental sustainability by reducing pollution and crowding.	4.01	1.281	.705				***
RSat_9. I am satisfied that urban tourism provides equitable economic benefits and job opportunities.	3.51	1.312	.739				***
RSat_10. I am satisfied that urban tourism encourages community participation and inclusive decision-making.	3.46	1.442	.734				***
Residents’ support for urban tourism	3.719			0.881	0.880	0.596	
RSup_1. Residents support the development of new cultural centers and eco-friendly hotels.	3.53	1.404	.735				***
RSup_2. Residents believe tourism generates positive economic outcomes and enhances community well-being.	3.83	1.249	.797				***
RSup_4. Residents hold positive attitudes toward international tourists visiting heritage sites.	3.84	1.242	.789				***
RSup_5. Residents actively volunteer at festivals and participate in homestay programs.	3.72	1.251	.775				***
RSup_6. Residents express confidence in transparent and inclusive tourism management.	3.68	1.216	.762				***

Further, the norming process was applied to construct factors based on Eigenvalues higher than one instead of fixed value extraction. According to the eigenvalue approach, fixed element standards will be chosen if the assessment results exceed the requested elements. The average variance explained across the six constructs was 59.6% as presented in Table 3, indicating that the latent constructs collectively accounted for a substantial proportion of variance in their observed indicators. This confirms that the study constructs are well represented by their respective measurement items and the model exhibits

strong explanatory adequacy. Additionally, the results showed that the entire factor loading in the pattern matrix was above 0.5. Hence, it evidenced the presence of convergent validity. The discriminant validity of the pattern matrix is supported by data that shows that cross-loading does not exist. While testing, the factor correlation matrix in Table 4 indicates that all constructs are positively and significantly correlated ($p < 0.001$), with coefficients ranging from 0.52 to 0.72. None of the correlations exceeded 0.85, confirming discriminant validity among the latent constructs (Fornell & Larcker, 1981).

Table 3. Total Variance Explained by the Study Constructs

Construct	CR	AVE	% of Variance Explained	Cumulative %
Urban Tourism Development (UrbanTD)	0.901	0.566	56.6	56.6
Economic Impacts (Ecl)	0.914	0.680	68.0	68.0
Environmental Impacts (EnI)	0.868	0.621	62.1	62.1
Sociocultural Impacts (SCI)	0.836	0.562	56.2	56.2
Residents' Satisfaction (RSat)	0.880	0.550	55.0	55.0
Residents' Support (RSup)	0.880	0.596	59.6	59.6
Average / Total Variance Explained (TVE)	—	—	59.6%	59.6%

Table 4. Factor Correlation Matrix (EFA Result)

Note: Extraction Method (Principal Axis Factoring) and Rotation Method (Promax with Kaiser Normalization).

Constructs	UrbanTD	Ecl	EnI	SCI	RSat	RSup
UrbanTD	1.00	.72	.63	.58	.54	.59
Ecl	.72	1.00	.66	.61	.56	.63
EnI	.63	.66	1.00	.55	.52	.58
SCI	.58	.61	.55	1.00	.60	.62
RSat	.54	.56	.52	.60	1.00	.67
RSup	.59	.63	.58	.62	.67	1.00

2. Structural Equation Modeling Analysis (SEM Analysis) and Path Analysis Results

The structural equation model (SEM) was developed to examine the relationships between Urban Tourism Development, Impacts of Tourism, Residents' Satisfaction with Urban Tourism and Residents' Support for Urban Tourism development model. The model demonstrates an overall acceptable to good fit to the data ($\chi^2/df = 3.149$, RMSEA = 0.067, NFI = 0.921, GFI = 0.913, TLI = 0.907). These values suggest that the hypothesized measurement model adequately represents the observed data, meeting conventional SEM standards (Hair et al., 2019; Hu & Bentler, 1999).

The path analysis diagram for the proposed research model is presented in Figure 4.

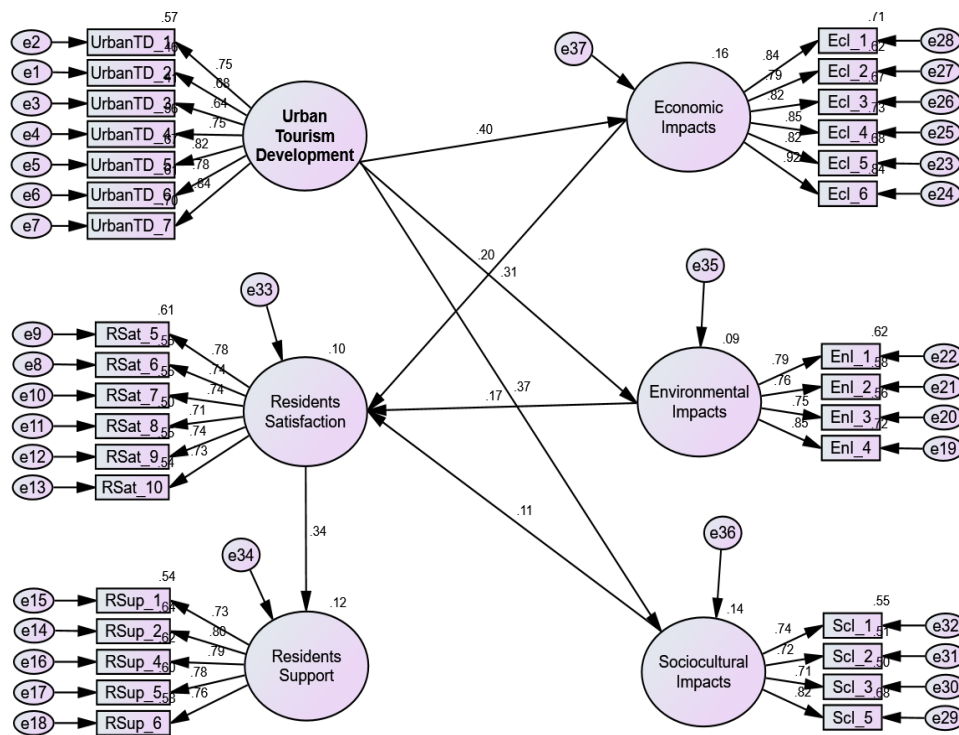


Figure 4. The Empirical Structural Equation Model for the Positive Influence of Urban Tourism Development on Sustainability

The findings of the path analysis reveal several key relationships:

Firstly, as seen Table 5, the model indicated that Urban Tourism Development strongly influences Positive Economic, Environmental and Sociocultural Impacts of Tourism ($\beta = 0.397$, $p < 0.001$; $\beta = 0.307$, $p < 0.001$ and $\beta =$

0.373, $p < 0.001$, respectively), (H1, H2 and H3), indicating that Urban Tourism Development initiatives are one of the most important factors that directly contribute to the positive Economic, Environmental and Sociocultural impact of tourism. Then, it can be seen in the model that Positive Economic, Environmental and Sociocultural impact of tourism significantly impact Residents' Satisfaction with Urban Tourism development ($\beta = 0.197$, $p < 0.001$; $\beta = 0.175$, $p < 0.05$ and $\beta = 0.114$, $p < 0.05$, respectively), (H4, H5 and H6), suggesting that the increasing positive Economic, Environmental and Sociocultural impact of tourism creates a sense of satisfaction with the Urban Tourism development in their hometown from various perspectives. Finally, the model also showed that Residents' Satisfaction with Urban Tourism development has a significant direct effect on Residents' Support for Urban Tourism development ($\beta = 0.343$, $p < 0.001$), (H7), suggesting that only when residents attain a high level of satisfaction with the tourism benefits for their living area will they strongly support the development of urban tourism.

Table 5. Path analysis (Standardized Regression Weights: Group number 1 - Default model)
(Note: ** significant at 0.05, *** significant at 0.001 level)

Hypothesis	Paths	Path Coefficient	S.E.	C.R.	p-Value	Relationship
H1	Environmental Impacts <--- Urban Tourism Development	.307	.077	5.523	***	Supported
H2	Sociocultural Impacts <--- Urban Tourism Development	.373	.069	6.504	***	Supported
H3	Economic Impacts <--- Urban Tourism Development	.397	.069	7.251	***	Supported
H4	Residents Satisfaction <--- Environmental Impacts	.175	.042	3.202	.001	Supported
H5	Residents Satisfaction <--- Economic Impacts	.197	.046	3.708	***	Supported
H6	Residents Satisfaction <--- Sociocultural Impacts	.114	.050	2.059	.039	Supported
H7	Residents Support <--- Residents Satisfaction	.343	.062	6.124	***	Supported

3. Relationships of Causality Among Latent Variables

The results of the path analysis, summarized in Table 5, demonstrate that all hypothesized causal relationships among the latent constructs are statistically significant and positive. Specifically, Urban Tourism Development exerts a strong and positive influence on the three impact dimensions of tourism - Environmental Impacts (H1: $\beta = 0.307$, $p < 0.001$), Sociocultural Impacts (H2: $\beta = 0.373$, $p < 0.001$), and Economic Impacts (H3: $\beta = 0.397$, $p < 0.001$) - indicating that the development of urban tourism substantially enhances environmental quality perceptions, sociocultural exchanges, and economic benefits for residents. Furthermore, the three dimensions of tourism significantly and positively affect Residents' Satisfaction, supporting hypotheses H4-H6. Among them, Economic Impacts (H5: $\beta = 0.197$, $p < 0.001$) and Environmental Impacts (H4: $\beta = 0.175$, $p = 0.001$) exhibit relatively stronger effects compared with Sociocultural Impacts (H6: $\beta = 0.114$, $p = 0.039$), suggesting that residents' satisfaction is more strongly shaped by tangible economic and environmental outcomes than by sociocultural ones. Finally, Residents' Satisfaction shows a substantial and positive effect on Residents' Support for Tourism (H7: $\beta = 0.343$, $p < 0.001$), confirming that higher satisfaction levels translate into stronger community endorsement of tourism development. Collectively, these findings confirm a well-structured causal chain whereby Urban Tourism Development enhances multidimensional tourism impacts, which in turn elevate Residents' Satisfaction and ultimately foster Residents' Support for Tourism. The coefficient estimates illustrated in Figure 4 were derived using structural equation modeling (SEM) and represent the magnitude and direction of these interrelationships among latent variables.

DISCUSSION

The findings of this study provide robust empirical evidence that urban tourism development significantly contributes to the sustainability of Almaty City through its economic, environmental, and socio-cultural dimensions. By applying Structural Equation Modeling (SEM) to data from 1136 residents, the results reveal that urban tourism enhances economic diversification, job creation, and infrastructure improvement - findings consistent with previous studies conducted in other emerging destinations (e.g., Gursoy et al., 2019; Styliadis et al., 2014). These results reinforce the argument that well-planned urban tourism acts as a catalyst for local entrepreneurship and economic resilience.

In line with the works of Mamirkulova et al. (2025) on Lenger and Issakov et al. (2023) on Turkistan, this study confirms that residents' positive perceptions of tourism benefits are closely linked to their satisfaction and support for sustainable tourism. Similar to these cases, Almaty demonstrates that tourism-led investments in infrastructure and recreation enhance both economic opportunities and quality of life. However, compared to smaller cities, the influence of tourism in Almaty is more strongly associated with environmental and infrastructural modernization, reflecting its metropolitan scale and strategic economic role. This pattern resonates with broader research on urban transformation across Central Asia. Sergeyeva, DAN'SHIN, et al. (2025), examining spatial change in small and medium-sized cities of Uzbekistan's Bukhara region, identified four distinct urbanization trajectories - agglomerative growth, compact expansion, fragmented development, and stagnation - driven largely by uneven infrastructure access and institutional inertia.

Such heterogeneity in regional urban development trajectories reinforces the present study's observation that city scale and economic positioning shape how tourism-related infrastructure and environmental investments unfold, suggesting that findings from a metropolitan center like Almaty may not generalize uniformly to smaller or more peripheral urban settlements in the region. The study also extends prior research. From a socio-cultural perspective, the results echo the conclusions of Styliadis et al. (2014) and Rasoolimanesh et al. (2017), who found that tourism strengthens local identity and civic pride when communities are actively engaged in cultural preservation. The revitalization of cultural events and restoration of heritage sites in Almaty fostered social cohesion and pride among residents. Nevertheless, this study also found that socio-cultural factors

exerted a comparatively weaker effect on residents' overall satisfaction, indicating that economic and environmental benefits remain the most salient determinants of public support - an observation also reported by Joo et al. (2020).

The integration of Social Exchange Theory (SET) and the Triple Bottom Line (TBL) framework in this study offers theoretical value by confirming that residents' support for tourism is driven by perceived reciprocity across economic, environmental, and socio-cultural dimensions. This finding is consistent with earlier conceptual and empirical work (Nunkoo, 2016; Rasoolimanesh et al., 2021), which emphasized that community trust and benefit-sharing are prerequisites for sustainable tourism acceptance. Despite the strong empirical evidence, the study has limitations. Its focus on Almaty restricts generalization to smaller or less-developed cities where tourism infrastructure and community participation differ significantly. Moreover, the cross-sectional design prevents observation of long-term changes in residents' attitudes. Future studies could address these gaps through longitudinal and comparative research across multiple urban contexts in Kazakhstan and Central Asia, as well as by incorporating the perspectives of additional stakeholders such as local businesses, policymakers, and tourists. Finally, building upon the emerging literature on smart cities and AI-driven sustainability (Kourtit et al., 2024), future research could explore how digital technologies and data-driven governance enhance urban tourism efficiency, monitoring, and community participation. Integrating such innovations into urban tourism frameworks could provide new pathways toward sustainable and intelligent city management in Kazakhstan.

CONCLUSION

This study examined the impact of urban tourism development on sustainability in Almaty City through an integrated economic, environmental, and socio-cultural framework. Using Structural Equation Modeling (SEM) on data from 1136 residents, the results confirmed that urban tourism significantly enhances city livability and contributes to all three pillars of sustainability. Urban tourism in Almaty functions as a socio-ecological process that stimulates economic diversification, job creation, and infrastructure improvement while promoting environmental stewardship through green initiatives and sustainable transport. It also reinforces socio-cultural identity by revitalizing heritage sites and community pride.

Among the three dimensions, economic and environmental factors exerted the strongest influence on residents' satisfaction, which in turn mediated their support for sustainable tourism. This highlights the importance of inclusive, transparent, and community-oriented tourism policies. Theoretically, the study advances sustainable tourism research by integrating Social Exchange Theory (SET) with the Triple Bottom Line (TBL) framework, showing that residents' support depends on the perceived balance of shared benefits. Practically, it provides guidance for urban policymakers to strengthen green infrastructure, promote cultural tourism, and ensure fair benefit distribution. While limited to Almaty and based on cross-sectional data, the study offers a foundation for comparative and longitudinal research across Central Asian cities. Future studies should incorporate diverse stakeholder perspectives and explore how smart city tools and AI applications can enhance tourism governance. Overall, the findings demonstrate that well-managed urban tourism can serve as a strategic driver of sustainable urban transformation. For Almaty, aligning tourism growth with inclusive governance, environmental responsibility, and community participation will reinforce its role as a model for resilient and livable cities in Central Asia.

Author Contributions: Conceptualization, I.A. and G.K.; methodology, I.A.; software, I.A., G.K., A.S., A.Z., M.M. and B.P.; validation, I.A., G.K., A.S., A.Z., M.M., B.P. and G.Y.; formal analysis, I.A., G.K., A.S., A.Z., M.M., B.P. and G.Y.; investigation, I.A., G.K., A.S., A.Z., M.M., A.F.R., B.P. and G.Y.; data curation, I.A., G.K. and A.F.R.; writing - original draft preparation, I.A., G.K., A.S., A.Z., M.M., A.F.R., B.P. and G.Y.; writing - review and editing, I.A., G.K. and A.F.R.; visualization, I.A., G.K., A.S., A.Z., M.M., A.F.R., B.P. and G.Y.; supervision, G.K.; project administration, I.A. and G.K. All authors have read and agreed to the published version of the manuscript.

Funding: Not applicable.

Institutional Review Board Statement: Not applicable.

Informed Consent Statement: Not applicable.

Data Availability Statement: The data presented in this study may be obtained on request from the corresponding author.

Acknowledgements: The author(s) received no financial support for the research, authorship, and/or publication of this article. We are grateful to our institutions. Also, many thanks to the anonymous reviewers for their helpful comments and guidance. Lastly, thank you to the survey participants who provided valuable insights.

Conflicts of Interest: The authors declare no conflict of interest.

REFERENCES

- Akbar, I. (2025). *Positive outcomes of cross-border tourism development cooperation: a case of Kazakhstan, Kyrgyzstan and Uzbekistan*. <https://doi.org/10.18335/region.v11i2.494>
- AlmatyAkimat. (2023). *Draft long-term development plan of Almaty agglomeration until 2030 prepared*. accessed 12.21.2025. <https://primeminister.kz/en/16708>
- Andereck, K. L., & Nyaupane, G. P. (2011). Exploring the nature of tourism and quality of life perceptions among residents. *Journal of Travel research*, 50(3), 248-260. <https://doi.org/10.1177/0047287510362918>
- Ap, J. (1992). Residents' perceptions on tourism impacts. *Annals of tourism Research*, 19(4), 665-690. [https://doi.org/10.1016/0160-7383\(92\)90060-3](https://doi.org/10.1016/0160-7383(92)90060-3)
- Ashworth, G., & Page, S. J. (2011). Urban tourism research: Recent progress and current paradoxes. *Tourism management*, 32(1), 1-15. <https://doi.org/10.1016/j.tourman.2010.02.002>

- Aytas, G., Doganay Ergen, F., & Bas, B. (2022). Determining the opinions of travel agencies in terms of cultural tourism: The case of Ankara province. *University of South Florida (USF) M3 Publishing*, 16(9781955833103), 16. <https://www.doi.org/10.5038/9781955833103>
- Becken, S., & Hay, J. E. (2007). *Tourism and climate change: Risks and opportunities* 1. Multilingual Matters. <https://www.researchgate.net/publication/29469785>
- Bellini, N., Go, F. M., & Pasquinelli, C. (2016). Urban tourism and city development: notes for an integrated policy agenda. In *Tourism in the city: Towards an integrative agenda on urban tourism* 333-339. Springer. https://www.doi.org/10.1007/978-3-319-26877-4_24
- Berdenov, Z., Arykbayeva, K., Sadvakassova, S., Kakimzhanov, Y., Kabiye, Y., GÜLEÇ, S., & Alimkhanova, R. (2025). Astana and the preservation of cultural heritage: Challenges and prospects in the context of modernization and urbanization. *Geojournal of Tourism and Geosites*, 62(4), 2128-2137. <https://doi.org/10.30892/gtg.62412-1578>
- Blau, P. (2017). *Exchange and power in social life*. Routledge. <https://doi.org/10.4324/9780203792643>
- Boiko, V., Liubynskiy, O., Strikha, L., Zarakhovskiy, O., & Neilenko, S. (2021). Development of Culinary Tourism in European Countries. <https://dspace.mnau.edu.ua/jspui/handle/123456789/19287>
- Briedenhann, J., & Wickens, E. (2004). Tourism routes as a tool for the economic development of rural areas—vibrant hope or impossible dream? *Tourism management*, 25(1), 71-79. [https://doi.org/10.1016/S0261-5177\(03\)00063-3](https://doi.org/10.1016/S0261-5177(03)00063-3)
- Byrd, E. T., Bosley, H. E., & Dronberger, M. G. (2009). Comparisons of stakeholder perceptions of tourism impacts in rural eastern North Carolina. *Tourism management*, 30(5), 693-703. <https://doi.org/10.1016/j.tourman.2008.10.021>
- Cerisola, S., & Panzera, E. (2021). Cultural and creative cities and regional economic efficiency: Context conditions as catalyzers of cultural vibrancy and creative economy. *Sustainability*, 13(13), 7150. <https://doi.org/10.3390/su13137150>
- Chauhan, E. (2022). Residents' motivations to participate in decision-making for cultural heritage tourism: Case study of New Delhi. *Sustainability*, 14(14), 8406. <https://doi.org/10.3390/su14148406>
- Choi, H. C., & Sirakaya, E. (2006). Sustainability indicators for managing community tourism. *Tourism management*, 27(6), 1274-1289. <https://doi.org/10.1016/j.tourman.2005.05.018>
- Collins, T. (2016). Urban civic pride and the new localism. *Transactions of the Institute of British Geographers*, 41(2), 175-186. <https://doi.org/10.1111/tran.12113>
- de Bruyn, C., & Meyer, N. (2022). Tourism and destination management: determining the viability of tourism development in local regions. *Polish Journal of Management Studies*, 25(2), 123-137. <https://doi.org/10.17512/pjms.2022.25.2.08>
- Deda, P., Roll, G., Makeev, T., Alibegovic, M., Batac, C., Salazar, A., & Tarantino, M. (2024). Smart Sustainable Cities Profile: Almaty, Kazakhstan. <https://publicatt.unicatt.it/handle/10807/293277>
- Deery, M., Jago, L., & Fredline, L. (2012). Rethinking social impacts of tourism research: A new research agenda. *Tourism management*, 33(1), 64-73. <https://doi.org/10.1016/j.tourman.2011.01.026>
- Drăguleasa, I. A., Niță, A., & Mazilu, M. (2023). Capitalization of Tourist Resources in the Post-COVID-19 Period—Developing the Chorematic Method for Oltenia Tourist Destination, Romania. *Sustainability*, 15(3), 2018. <https://doi.org/10.3390/su15032018>
- Emamnia, S. A. (2023). *The concept of sustainable city and eco-city in Iran, case study the third district of Isfahan municipality* [Politecnico di Torino]. <http://webthesis.biblio.polito.it/id/eprint/29869>
- Glaeser, E. L., & Gottlieb, J. D. (2006). Urban resurgence and the consumer city. *Urban studies*, 43(8), 1275-1299. <https://doi.org/10.1080/00420980600775683>
- Gordon, I. (1987). Sample size estimation in occupational mortality studies with use of confidence interval theory. *American journal of epidemiology*, 125(1), 158-162. <https://doi.org/10.1093/oxfordjournals.aje.a114499>
- Gursoy, D., Ouyang, Z., Nunkoo, R., & Wei, W. (2019). Residents' impact perceptions of and attitudes towards tourism development: A meta-analysis. *Journal of Hospitality Marketing & Management*, 28(3), 306-333. <https://doi.org/10.1080/19368623.2018.1516589>
- Gursoy, D., & Rutherford, D. G. (2004). Host attitudes toward tourism: An improved structural model. *Annals of tourism Research*, 31(3), 495-516. <https://doi.org/10.1016/j.annals.2003.08.008>
- Hair, J., Joe F, Sarstedt, M., Matthews, L. M., & Ringle, C. M. (2016). Identifying and treating unobserved heterogeneity with FIMIX-PLS: part I—method. *European business review*, 28(1), 63-76. <https://doi.org/10.1108/EBR-09-2015-0094>
- Hair, J. F., Risher, J. J., Sarstedt, M., & Ringle, C. M. (2019). When to use and how to report the results of PLS-SEM. *European business review*, 31(1), 2-24. <https://doi.org/10.1108/EBR-11-2018-0203>
- Homans, G. C. (1958). Social behavior as exchange. *American journal of sociology*, 63(6), 597-606. <https://doi.org/10.1086/222355>
- Hu, L. T., & Bentler, P. M. (1999). Cutoff criteria for fit indexes in covariance structure analysis: Conventional criteria versus new alternatives. *Structural equation modeling: a multidisciplinary journal*, 6(1), 1-55. <https://doi.org/10.1080/10705519909540118>
- Issakov, Y., Aktymbayeva, A., Assipova, Z., Nuruly, Y., Sapiyeva, A., Shaken, A., Pavlichenko, L., Kaliyeva, A., Plokhikh, R., & Dávid, L. D. (2023). Study of the impact of UNESCO heritage sites on sustainable tourism development: a case study of the mausoleum of Khoja Ahmed Yasawi, Turkestan. *Geojournal of Tourism and Geosites*, 51, 1717-1727. <https://doi.org/10.30892/gtg.514spl12-1167>
- Issakov, Y., Aktymbayeva, A., Savanchiyeva, A., Assipova, Z., Taukebayeva, M., Moldagaliyeva, A., Burakov, M., Zhu, K., & Dávid, L. D. (2025). Opportunities and perspectives of formation of the mountain tourism cluster in Almaty agglomeration. *Geojournal of Tourism and Geosites*, 58(1), 105-118. <https://doi.org/10.30892/gtg.58109-1394>
- Jia, Y., Liu, R., Li, A., Sun, F., & Yeh, R. (2023). Rural tourism development between community involvement and residents' life satisfaction: tourism agenda 2030. *Tourism Review*, 78(2), 561-579. <https://doi.org/10.1108/TR-02-2022-0097>
- Jiang, Y., Guo, Y., & Zhou, H. (2023). Residents' perception of tourism impact, participation and support in destinations under the COVID-19 pandemic: The intermediary role of government trust. *Sustainability*, 15(3), 2513. <https://doi.org/10.3390/su15032513>
- Joo, D., Woosnam, K. M., Strzelecka, M., & Boley, B. B. (2020). Knowledge, empowerment, and action: Testing the empowerment theory in a tourism context. *Journal of sustainable tourism*, 28(1), 69-85. <https://doi.org/10.1080/09669582.2019.1675673>
- Karimov, M., Jeong, J. Y., Sobirov, Y., & Choi, C. (2023). The role of transportation infrastructure in the development of international tourism in Uzbekistan. *Revista Turismo & Desenvolvimento (RT&D)/Journal of Tourism & Development*(41). <https://doi.org/10.34624/rt.d.v41i0.30576>
- Kim, K., Uysal, M., & Sirgy, M. J. (2013). How does tourism in a community impact the quality of life of community residents? *Tourism management*, 36, 527-540. <https://doi.org/10.1016/j.tourman.2012.09.005>
- Kim, S., Kang, Y., Park, J. H., & Kang, S. E. (2021). The impact of residents' participation on their support for tourism development at a community level destination. *Sustainability*, 13(9), 4789. <https://doi.org/10.3390/su13094789>
- Kourtit, K., Nijkamp, P., Östh, J., & Türk, U. (2024). Is artificial intelligence a trustworthy route navigation system for smart urban planning? *Eastern Journal of European Studies*, 15(2). <https://doi.org/10.47743/ejes-2024-0203>
- KTNC. (2024). Kazakh Tourism National Company: Tourism Statistics of Kazakhstan 2023–2024. accessed 12.21.2025. <https://qaztourism.kz>

- Larsen, J., & Urry, J. (2011). Gazing and performing. *Environment and Planning D: Society and space*, 29(6), 1110-1125. <https://doi.org/10.1068/d21410>
- Li, X., Kim, J. S., & Lee, T. J. (2021). Collaboration for community-based cultural sustainability in island tourism development: A case in Korea. *Sustainability*, 13(13), 7306. <https://doi.org/10.3390/su13137306>
- Mamirkulova, G., Akbar, I., Tazhekova, A., Myrzaliyeva, Z., & Pazylkhaiyr, B. (2025). The role of environmental infrastructure in enhancing place affection and quality of life: Evidence from a mountainous tourism destination in Lenger town of Kazakhstan. *Geojournal of Tourism and Geosites*, 61(3), 1594-1603. <https://doi.org/10.30892/gtg.61318-1528>
- Nguyen, T. A., Do, S. T., Le-Hoai, L., Nguyen, V. T., & Pham, T. A. (2023). Practical workflow for cultural heritage digitalization and management: A case study in Vietnam. *International Journal of Construction Management*, 23(13), 2305-2319. <https://doi.org/10.1080/15623599.2022.2054268>
- Nikkhah, F., Kiani Feizabadi, Z., & Najjarzadeh, M. (2021). The Effect of Tourism Experience on Memories, Satisfaction and Behavioural Intentions of Tourists Visiting Shiraz City. *Urban tourism*, 8(1), 83-97. <https://doi.org/10.22059/jut.2021.310080.835>
- Nunkoo, R. (2016). Toward a more comprehensive use of social exchange theory to study residents' attitudes to tourism. *Procedia Economics and Finance*, 39, 588-596. [https://doi.org/10.1016/S2212-5671\(16\)30303-3](https://doi.org/10.1016/S2212-5671(16)30303-3)
- Nunkoo, R., & Gursoy, D. (2012). Residents' support for tourism: An identity perspective. *Annals of tourism research*, 39(1), 243-268. <https://doi.org/10.1016/j.annals.2011.05.006>
- Nyong, A., Ofem, N., Umo, U., Ebagu, T., Benjamin, I., Ben, A., Arrey, M., Ebong, E., Ebiala, P., & Okoro, L. (2024). Exploring Intra-City Transportation System As A Catalyst For Sustainable Tourism Development In Calabar, Nigeria. *Geojournal of Tourism and Geosites*, 56(4), 1856-1866. <https://doi.org/10.30892/gtg.56439-1353>
- QAZSTAT. (2024). *Socio-economic development of the Republic of Kazakhstan*. accessed 12.21.2025. <https://stat.gov.kz>.
- QAZSTAT. (2025). *Bureau of National Statistics of the Republic of Kazakhstan: Population and Demography Report*. accessed 12.21.2025. <https://stat.gov.kz>
- Rasoolimanesh, S. M., Roldán, J. L., Jaafar, M., & Ramayah, T. (2017). Factors influencing residents' perceptions toward tourism development: Differences across rural and urban world heritage sites. *Journal of Travel Research*, 56(6), 760-775. <https://doi.org/10.1177/0047287516662354>
- Rasoolimanesh, S. M., Seyfi, S., Hall, C. M., & Hatamifar, P. (2021). Understanding memorable tourism experiences and behavioural intentions of heritage tourists. *Journal of Destination Marketing & Management*, 21, 100621. <https://doi.org/10.1016/j.jdmm.2021.100621>
- Richards, G. (2018). Cultural tourism: A review of recent research and trends. *Journal of hospitality and tourism management*, 36, 12-21. <https://doi.org/10.1016/j.jhtm.2018.03.005>
- Richards, G. (2021). Actors in cultural tourism practices. In *Rethinking cultural tourism* 19-48. Edward Elgar Publishing Ltd. <https://doi.org/10.4337/9781789905441.00007>
- Roncak, M. (2023). Tourist city Prague on the way to cul-tural sustainability. *Coping with Overtourism in Post-Pandemic Europe: Approaches, Experiences and Challenges*, 7, 84. <https://www.researchgate.net/publication/376047412>
- Sakhatbekovna, T. M., Kamanaevna, M. K., Akbar, I., Zhaksybekkyzy, T. A., & Kazbekkyzy, M. Z. (2024). Sustainability of the Urban System Planning in Shu City, Kazakhstan: An Evaluation through Residents' Perception. *Chinese Journal of Urban and Environmental Studies*, 12(03), 2450013. <https://doi.org/10.1142/S2345748124500131>
- Scott, D., Hall, C. M., & Stefan, G. (2012). *Tourism and climate change: Impacts, adaptation and mitigation*. Routledge. <https://doi.org/10.4324/9780203127490>
- Sergeyeva, A., Akbar, I., & Karakulov, Y. (2025). Optimization of urban spatial planning considering isochrones of transport accessibility: The case of Aktobe city, Kazakhstan. *Journal of the Bulgarian Geographical Society*, 52, 183-204. <https://doi.org/10.3897/jbgs.e152149>
- Sergeyeva, A., Dan'shin, A., Akbar, I., Usmonov, A., & Ergashev, A. (2025). Urbanization and Spatial Transformation of Cities in the Bukhara Region in Uzbekistan. *Chinese Journal of Urban and Environmental Studies*, 13(03), 2550017. <https://doi.org/10.1142/S2345748125500174>
- Sharpley, R. (2014). Host perceptions of tourism: A review of the research. *Tourism management*, 42, 37-49. <https://doi.org/10.1016/j.tourman.2013.10.007>
- Stipanović, C., Rudan, E., & Zubović, V. (2019). Cultural and Creative industries in Urban Tourism innovation—The example of the City of Rijeka. *Tourism in South East Europe*, 5, 655-666. <https://doi.org/10.20867/tosee.05.47>
- Stylidis, D., Biran, A., Sit, J., & Szivas, E. M. (2014). Residents' support for tourism development: The role of residents' place image and perceived tourism impacts. *Tourism management*, 45, 260-274. <https://doi.org/10.1016/j.tourman.2014.05.006>
- Tan, Y., Jiang, G., Merajuddin, S. S., & Zhao, F. (2025). Urbanization and tourism economic development. *Finance Research Letters*, 73, 106632. <https://doi.org/10.1016/j.frl.2024.106632>
- Tang, R., Kang, S. E., Lee, W. S., & Park, S. (2021). Influence of residents' perceptions of tourism development on their affective commitment, altruistic behavior, and civic virtue for community. *International Journal of Tourism Research*, 23(5), 781-791. <https://doi.org/10.1002/jtr.2441>
- Udahogora, M., Yang, Z. P., Nzabarinda, V., Akbar, I., Mindje, R., & Umwali, E. D. (2021). Comparing factors conditioning landscape change during volcanic eruption at Virunga National Park, East Africa. *Applied Ecology and Environmental Research*, 19(5), 3789-3803.
- Wall, G. (2023). *Rethinking cultural tourism*: by Greg Richards, Cheltenham, Edward Elgar, 2021, x+ 196 pp., £ 75 (hbk), ISBN 978-1-78990-543-4. In: Taylor & Francis. <https://doi.org/10.1080/1743873X.2022.2112844>
- Wani, M. D., Batool, N., Dada, Z. A., & Shah, S. A. (2024). Investigating the impact of community-based tourism on the residents' quality of life and their support for tourism. *Community Development*, 55(1), 138-159. <https://doi.org/10.1080/15575330.2023.2272271>
- Woo, E., Kim, H., & Uysal, M. (2015). Life satisfaction and support for tourism development. *Annals of tourism research*, 50, 84-97. <https://doi.org/10.1016/j.annals.2014.11.001>
- Zhao, L., Li, Y., Zhang, N., & Zhang, Z. (2023). Public policies and conservation plans of historic urban landscapes under the sustainable heritage tourism milieu: discussions on the equilibrium model on Kulangsu Island, UNESCO World Heritage site. *Built Heritage*, 7(1), 6. <https://doi.org/10.1186/s43238-023-00086-0>
- Zheng, Q., Xu, A., & Kong, D. (2017). Environmental education, knowledge management and professional performance in eco-tourism: The impact relatedness. *Eurasia Journal of Mathematics, Science and Technology Education*, 13(8), 4679-4687. <https://doi.org/10.12973/eurasia.2017.00958a>
- Ziari, K., & Mosleh, L. (2025). Enhancing environmental sustainability through the sustainable urban tourism: Case study of Northern Tehran, Iran. *Geojournal of Tourism and Geosites*, 58(1), 492-500. <https://doi.org/10.30892/gtg.58146-1431>