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CHALLENGES OF THE 21ST CENTURY IN THE CONTEXT OF SUSTAINABLE TOURISM IN A HUNGARIAN INDUSTRIAL CITY

The aim of our research is to show how Székesfehérvár, an industrial city in Hungary, can adapt to the challenges of the 21st century in the field of sustainability from the perspective of tourism. The city has launched a number of initiatives that directly address the sustainability of tourism. These projects include the expansion of green spaces, the promotion of environmentally friendly transport solutions and the protection of the local economy and heritage. A key element in the development of sustainable tourism is raising environmental awareness, which includes the organisation of educational programmes and community events to promote sustainable lifestyles among residents and visitors. Our research looked at how sustainability is integrated into the city's tourism-related developments and how this approach is becoming a key element of urban development. In our analysis, we look in detail at specific projects and programmes that have been implemented in Székesfehérvár in the context of sustainability, and assess their effectiveness, challenges and reception by residents and tourists.

Key words: Hungary, Székesfehérvár, tourism, climate protection, sustainability.

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Венгрияның өнеркәсіптік қаласындағы тұрақты туризм контекстіндегі XXI ғасырдың қиындықтары

Біздің зерттеуіміздің мақсаты – Венгрияның өнеркәсіптік қаласы Секешфехервардың туризм түрғысынан түрақтылық саласындағы XXI ғасырдағы қиындықтарға қалай бейімделе алатынын көрсету. Қала туризмнің тұрақтылығын тікелей шешуге бағытталған бірқатар бастамаларды қолға алды. Бұл жобалар жасыл аумақтарды кеңейту, экологиялық таза көлік шешімдерін ілгерілету және жергілікті экономика мен мұраны қорғауды қамтиды. Тұрақты туризмді дамытудың негізгі элементі тұрғындар мен келушілер арасында тұрақты өмір салтын насихаттау үшін білім беру бағдарламалары мен қоғамдық іс-шараларды ұйымдастыруды қамтитын экологиялық хабардарлықты арттыру болып табылады. Біздің зерттеуіміз тұрақтылық қаланың туризммен байланысты дамуымен қалай біріктірілгенін және бүл тәсіл қалайша қала дамуының негізгі элементіне айналғанын қарастырды. Талдауымызда біз Секешфехерварда тұрақтылық контекстінде жүзеге асырылған нақты жобалар мен бағдарламаларды егжей-тегжейлі қарастырамыз және олардың тиімділігін, қиындықтарын және тұрғындар мен туристерді қабылдауын бағалаймыз. Нәтижелер қала өмір сүру сапасын жақсарту және экологиялық әсерді азайту бойынша айтарлықтай жетістіктерді көрсетті. Сонымен қатар, болашақ дамудың мүмкіндіктері мен перспективалары көп. Бұл жобалар қаланың тұрақты дамуына маңызды үлес қосады. Қала үшін ұзақ мерзімді артықшылықтар қамтамасыз етіледі.

Түйін сөздер: Венгрия, Секешфехервар, туризм, климатты қорғау, тұрақтылық.

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Вызовы XXI века в контексте устойчивого туризма в венгерском промышленном городе

Цель нашего исследования – показать, как Секешфехервар, промышленный город в Венгрии, может адаптироваться к вызовам XXI века в области устойчивого развития с точки зрения туризма. Город запустил ряд инициатив, которые непосредственно касаются устойчивости туризма. Эти проекты включают в себя расширение зеленых зон, продвижение экологически чистых транспортных решений, защиту местной экономики и наследия. Ключевым элементом развития устойчивого туризма является повышение экологической осведомленности, что включает в себя организацию образовательных программ и общественных мероприятий, направленных на пропаганду устойчивого образа жизни среди жителей и гостей города. В нашем исследовании мы рассмотрели, как устойчивое развитие интегрировано в городского развития. В нашем анализе мы подробно рассматриваем конкретные проекты и программы, которые были реализованы в Секешфехерваре в контексте устойчивого развития, и оцениваем их эффективность, проблемы и восприятие жителями и туристами. Результаты показали значительное улучшение качества жизни и снижение экологического воздействия. Перспективы дальнейшего развития многообещающие.

Ключевые слова: Венгрия, Секешфехервар, туризм, защита климата, устойчивое развитие.

Introduction

Székesfehérvár is located in Central Transdanubia, the seat of Fejér County, a city with county rights. It is situated at the junction of two geographical regions: the Mezőföld and the Transdanubian Central Mountains. It is one of the most important towns in the history of Hungary, a coronation town, one of the capitals of the Kingdom of Hungary in the Middle Ages, and the royal seat. It is therefore extremely rich in monuments and an important economic, railway and road hub. It is one of the most developed industrial cities in Hungary and has a lively sporting and cultural life.

According to the study of Szendi and Sikos (Sikos T., Szendi D., 2023:88) -which aims to investigate sustainability and the smart economy- the city belongs to the cluster group of emerging, dynamic and liveable cities, the eighth most liveable Hungarian county city.

In our analysis, we examined how Székesfehérvár, an industrial city in Hungary, can adapt to the challenges of the 21st century in the field of sustainability, with a special focus on tourism. In our study we analysed several recent developments in order to examine their contribution to the sustainable development of the city. These developments include the Green City – Lungs of Fehérvár project, the Palotaváros Lakes Recreation Park and the development of the Sóstó Visitor Centre, all of which represent a significant step forward in the development of the city's green infrastructure and in making tourism more sustainable.

In assessing the projects examined, particular attention was paid to how they fit into the city's longterm sustainability strategy and their impact on the local community and tourism. The analysis found that Székesfehérvár has made significant progress in the development of sustainable tourism and green infrastructure, which contribute to the preservation of the city's cultural and natural heritage and to improving the quality of life for tourists and local residents.

The aim of the research is to show how Székesfehérvár, an industrial city in Hungary, can adapt to the sustainability challenges of the 21st century in terms of tourism. The city has launched a number of initiatives to promote sustainable tourism, such as the expansion of green spaces, the promotion of environmentally friendly transport solutions and the protection of the local economy and heritage. A key element in the development of sustainable tourism is raising environmental awareness, which includes the organisation of educational programmes and community events.

The scientific significance and practical relevance of the research lies in the detailed analysis of the sustainability efforts of Székesfehérvár and their impact on tourism and urban development in the city. Its practical significance is that it presents concrete examples and methods that can be applied to other cities in the design and development of sustainable tourism.

Material and method

The research aimed to answer how Székesfehérvár, an industrial city in Hungary, can adapt to the sustainability challenges of the 21st century through tourism development.

The hypothesis posited that the implementation of sustainable tourism practices and infrastructure developments in Székesfehérvár can significantly enhance the city's environmental, economic, and social sustainability.

Primary and secondary sources were used for the research. Primary data were collected from the website of the Municipality of Székesfehérvár and through direct observations. Secondary data were analysed based on a literature review. For the qualitative analysis, we conducted a content analysis of the city's website and used the field visit method to understand the recreational experiences offered by these sites.

The research was conducted in several phases:

- Literature Review: analyzing existing studies on sustainable tourism, focusing on methodologies and findings relevant to urban settings.

- Data Collection: gathering data from municipal records and direct field observations.

- Content analysis: performing a content analysis of the city's tourism and development projects as documented on the official website.

- Field Visits: conducting site visits to project locations, to observe and record the implementation and impact of these initiatives.

- Qualitative Analysis: used to assess the effectiveness of tourism projects in terms of sustainability goals.

The research confirmed that Székesfehérvár's sustainable tourism initiatives have positively impacted the city's environmental quality, community engagement, and overall urban sustainability. The results support the hypothesis that targeted sustainable tourism projects can effectively address urban sustainability challenges.

This methodological approach allowed us to get a comprehensive picture of the role of the excursion sites and recreational spaces in Székesfehérvár in sustainable tourism.

Literature analysis

The coronavirus epidemic has brought people closer to nature again, which according to Benjamin et al. (Benjamin S. et al., 2020:476) has helped to increase interest in sustainable tourism. In addition, El Archi et al. (El Archi Y. et al., 2023:1) have shown that more and more people are paying attention to reducing their environmental footprint and promoting the SDGs. Matos observed (Matos R., 2004:93) that sustainability and behavioural changes in tourism contribute to the concept of sustainable tourism. This is further extended by Conway and Timms (Conway D., Timms B.F., 2010:329) to include aspects of environmental protection, economic growth and social justice.

Accessibility plays an important role in tourists' choice of destinations, as highlighted by Tóth-Dávid-Vasa (Tóth G. et al., 2014:311). The unique identity of a destination is essential for travelers, increasing its attractiveness and competitiveness, as Piskóti et al. (Piskóti I. et al., 2023:55) note. According to Park and Kim (Park E., Kim S., 2016:351), local resources as assets are at the heart of tourism valorisation, while Petrini (Petrini S., 2007:304) stresses that it is during the journey that the experience is gained. The work of Tóth, Kaszás and Keller (Tóth N. et al., 2018:47) highlights the role of environmental sustainability in this context, which is an essential element of modern tourism. Thus, it is clear that sustainable tourism practices and related attitudinal changes play an important role in shaping current tourism trends (Dávid L. et al., 2012:236)], focusing on environmental protection, economic development and social justice. This relates to the findings of Alreahi et al. (Alreahi M. et al., 2023:25) who emphasise the need to improve environmental stewardship and strive for sustainability

Results

The Green City – Lungs of Fehérvár programme is one of the largest climate protection projects in Székesfehérvár, which also has a recreational and tourist purpose. The development aims to counterbalance the city's extensive development with a large-scale green and recreational area development. The forest and park development promotes leisure and recreation by planting 868 park and row trees on 30 hectares, planting 15 hectares of forestry seedlings and preserving the natural primeval grassland for its valuable wildlife. In addition, a service building of 200 m^2 with cafeteria and toilets; a parking lot for 50 cars; a 6 km long footpath with gravel/crushed stone pavement; a 3 km long footpath with dirt track; and a grassed area were constructed. A primary consideration in the development was to ensure that the green space is accommodating other infrastructure, which is different from the usual case, as green space is usually an additional element of infrastructure. It has opened only in September 2023, so it is now starting to be explored and used by locals and visitors alike as shown in Figure 1.



Figure 1 – The Green City-Lung of Fehérvár project (Source: own photo)

A little further from the city centre, but still a few minutes' walk away, is the Palotaváros Lakes Leisure Park as shown in Figure 2. The development will meet the needs of visitors for a healthy living space and provide a cultivated environment for active leisure. There is a fitness park, a gym, a road safety course and a playground. Around the South Lake there is a mixed-use grassy walkway for cycling, running and walking, a bike park, basketball and football pitches. The *recreation park is a natural setting for people to meet, play sports and organise activities. The* implementation of the project will help to achieve the objectives of improving and reducing the ecological and environmental pressures caused by industrial activity and of provid-

ing recreational facilities for residents and tourists by improving the quality of the urban environment and infrastructure in Székesfehérvár. On the eastern side of the southern lake, an events area, a cooking area, a small playground and sports fields (basketball and football pitches) have been created, while on the western side of the lake a dirt-bringing park has been developed. A mixed-use (cycling, running, walking) gravel walkway has also been created around the lake. Next to the northern lake, a fitness park, a fitness park for disabled people, a road safety course, a playground and a dog run have been built. It is a well-known place for fishing competitons, lot of national and international events are organized here and angling tourism is also developing.



Figure 2 – The Palotaváros Lakes Leisure Park (Source: own photo)

The Sóstó is located in the southern part of the city as shown in Figure 3, in the inner area of Székesfehérvár, which is formed by the 121 ha nationally protected Sóstó-Sand Mine Nature Reserve and the 97 ha locally protected Sóstó Nature Reserve. Sóstó is situated on the border between three different landscapes. The western side of the area is bordered by marshy mudflats, the southern side by the sandy, loamy landscapes of the Northern Fields, the northern side by the city of Székesfehérvár and, further north, by the Zámoly basin. The restoration of the nature reserve has resulted in the enhancement of natural processes, the preservation of the natural state, the protection of wetlands and the conservation of biodiversity. Ornithological surveys have confirmed the presence of more than 70 nesting species in the area. The area is of considerable botanical value. The number of protected plant species is in the thousands. The Sóstó Wildlife Centre plays a unique role in animal rescue and rehabilitation at national level, and visitors can gain an insight into this. The aim of the rehabilitation and education is to return the animals to the wild, preceded by a long period of indoor and outdoor rehabilitation. Animals that cannot be released due to permanent injury are kept in the best possible conditions and shown up close and personal. Visitors can also gain insight into the treatment process through open glass panels.

The Visitor Centre features an interactive presentation of the unique bird and plant life of the 200-hectare Sóstó nature reserve. Ecotours are held regularly, where visitors can learn about the fauna and flora of the nature trail with a professional guide. The Visitor Centre is housed in the impressive stadium of Fehérvár FC, which is also the home of the football club. The Visitor Centre also offers a wide range of activities. Young people can enjoy colourful, interactive activities to improve their knowledge and creativity and get closer to nature. Visitors can also take part in theme days, guided eco-tours led by experts, or explore the kilometres of green space, walking trails, nature trails and birdwatching trails on their own.

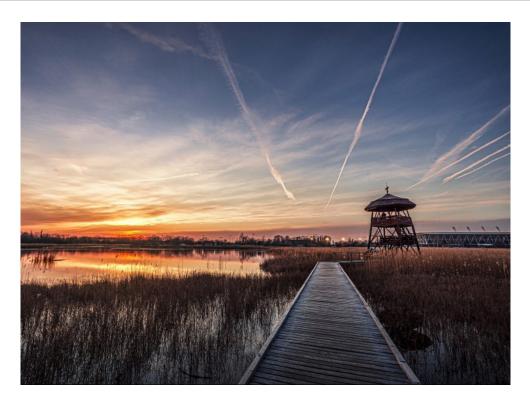


Figure 3 – Sóstó Székesfehérvár (Source: https://turizmus.szekesfehervar.hu/)

Discussion and conclusion

The results of this study indicate significant advancements in Székesfehérvár's approach to sustainable tourism. The implementation of projects such as the Green City – Lungs of Fehérvár, Palotaváros Lakes Leisure Park, and the Sóstó Visitor Centre showcases the city's commitment to integrating sustainability into urban development.

Comparing these results with previous studies (Benjamin S. et al., 2020:476), it is evident that Székesfehérvár's initiatives align well with global trends in sustainable tourism. El Archi et al. (El Archi, 2023:1) emphasized the role of smart tourism in sustainable development, which is reflected in the interactive and educational elements of the Sóstó Visitor Centre. The integration of technology and education in this project aligns with global best practices, making environmental education accessible and engaging for a wide audience.

The Palotaváros Lakes Leisure Park supports the findings of Matos (Matos R., 2004:93) and Conway and Timms (Conway D., Timms B.F., 2010:329), who advocated for the development of leisure spaces that promote a slow, sustainable approach to tourism. This park not only provides recreational facili-

ties but also serves as a community hub, fostering social cohesion and active lifestyles.

Today, awareness-raising is of paramount importance, with a wide range of tools to reach a broad audience. Today, it is receiving more and more attention and is becoming increasingly prominent. Children and young people (Seres Z., 2019:34) are a particular target group for awareness-raising activities, since if they learn about the effects of climate change and the importance of protecting the environment and nature at an early age, they will be better able to protect it as adults. Given that this age group is already using various communication and entertainment tools, it is also easier to access them in everyday life. These recreational areas also play an important role in shaping attitudes.

It is important that the communication emphasises the following when shaping attitudes:

- Health promotion, health protection
- Adverse effects of climate change
- Individual responsibility

- Individual action can contribute to improving quality of life and preserving a better quality environment

- Personal benefits, cost reduction
- Warning on climatic extremes

Through green space developments, Székesfehérvár aims to increase biodiversity, improve the urban climate and reduce the heat island effect. These are of great importance for an industrial city, as they offset the harmful emissions of industry with large-scale green space developments, which are also of paramount importance for climate protection. On the other hand, new recreational areas for tourists and locals will be created, which will provide a new attraction alongside the cultural heritage (Dávid L. et al., 2009:482), thus increasing the tourism value of the city.

To sum up, the city is constantly keeping climate protection and recreational aspects in mind in both its tourism development and daily operations. The municipality aims to preserve a liveable environment for future generations and to reduce greenhouse gas emissions by implementing environmentally friendly tourism developments. The protection of natural assets, increasing the quantity and quality of green spaces and combating the climate crisis are priorities in the life of the town, as they play a vital role in improving the quality of life and the urban climate and preserving natural diversity.

This study aligns with findings by Dadkhah et al. (Dadkhah M. et al., 2024:13) on the integration of emerging technologies for sustainable development goals, highlighting the need for innovative approaches in urban sustainability. Additionally, the emphasis on local community engagement and sustainable practices is consistent with the systematic review by Dávid and El Archi (Dávid L.D., El Archi Y., 2024:13) which underscores the importance of community involvement in sustainable tourism development. Furthermore, these initiatives support the broader objectives of sustainability as outlined in the comprehensive review by El Archi et al. on smart tourism destinations. The practical application of these sustainable strategies in urban settings is further echoed in Priatmoko et al. (Priatmoko S. et al., 2021:13) which explores sustainable urban development and the integration of green infrastructure. The concept of sustainable tourism is also discussed by Baros and Dávid (Dávid L.D., Baros Z., 2007:349), who emphasize the importance of balancing the needs of current tourists and hosts with the protection and enhancement of opportunities for future generations, highlighting the interconnectedness of environmental, economic, and social dimensions of sustainability. Additionally, Zhu et al. (Zhu K. et al., 2023:22) examine the balance between tourism development and ecological pressure in the Yangtze River basin, demonstrating the importance of harmonizing economic growth with environmental sustainability in regional tourism.

The research contributes to the field of sustainable tourism by showing in detail, through the example of Székesfehérvár, how sustainability can be integrated into urban tourism. The city has made notable progress in sustainable urban tourism. It's comprehensive approach aligns well with global best practices, highlighting the importance of green spaces, environmental awareness, and community involvement in achieving sustainability goals. These efforts have improved the quality of life for residents and visitors and contributed to the preservation of cultural and natural heritage. The research can help the academic community and policy makers to understand and apply sustainable tourism practices in different urban contexts.

The practical relevance of the research is that the projects and programmes presented will provide concrete guidance for other cities to implement sustainable tourism. The projects provide a model for other cities aiming to enhance sustainability in urban tourism. The results show that improving green spaces, raising environmental awareness and encouraging community participation can contribute significantly to improving the quality of life in cities and to the success of sustainable tourism. Such developments can result in long-term economic benefits, improved community relations and a reduced environmental footprint, as well as increasing environmental awareness and active participation in sustainability efforts by local residents and tourists.

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