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## ASSESSMENT OF ECONOMIC FUNCTIONS AND TOURIST ATTRACTIONS OF "KORZENIOWY DÓŁ" IN KAZIMIERZ DOLNY IN THE LIGHT OF SUSTAINABLE DEVELOPMENT

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**ABSTRACT:** The purpose of this study is to determine the way of tourism management of the loess ravine "Korzeniowy Dół" in Kazimierz Dolny on the Vistula river, taking into account the principles of sustainable development. This report uses secondary results obtained from the City Hall of Kazimierz Dolny. These were electronic measurements of the tourist traffic on the Vistula Boulevard and the number of tickets sold to the Castle and the Tower as well as Góra Trzech Krzyży. In addition, diagnostic survey was conducted using the questionnaire and direct interview. "Korzeniowy Dół" is one of the products that create the image of Kazimierz Dolny as a tourist town and should be developed in such a way that erosion processes are maximally slowed down. This ravine should be completely closed for traffic.. The bottom of the ravine should be drained and water should be drained through a pipe to the ditch. The bottom of the ravine should remain a ground road used only for pedestrian traffic, as it is only possible way to this tourist and natural attraction preserve for other generations. Visiting the ravine should be paid, like the entrance to Góra Trzech Krzyży, which will contribute to the protection of attractions and will help raise funds for the expansion of accompanying tourist infrastructure. The originality of the work consists in indicating the way of commercialization of the loess ravine in Kazimierz Dolny.

**KEY WORDS:** Kazimierz Dolny, tourism, nature protection, commercialization

## Introduction

From an economic point of view, tourism is a form of economy in the service sector, but in the national economy, it is no homogenous part (Panaś, 2007, p. 50); it is often defined as a socio-economically and spatially complex phenomenon, and therefore affects the economy as well as resources such as natural and cultural values (Brelík, 2009, p. 267; Sawicka, p. 188). In spite of the important role of tourism in the economy, it is necessary to mention also its dysfunctional impact both in the social and spatial dimension connected with the destruction of the landscape and degradation of natural and cultural environment (Chojnacka, Wilkaniec, 2010, p. 81). Niezgoda (2006, p. 5) stresses that the dysfunctional nature of tourism is expressed as a result of the lack of human control over development processes in space. It is therefore necessary to implement the principles of sustainable development in the tourist reception area (Jalinik, 2017, p. 205-213), which refers to the management and protection of natural resources, reduction of anthropopression and public access to environmental information and participation in decision-making process (Piątek, 2002, p. 179). The local authorities have a great role in shaping and promoting the region of the tourist reception area, and local communities have territorial connections.

The purpose of this study is to determine the way of tourism management of the loess ravine "Korzeniowy Dół" in Kazimierz Dolny on the Vistula river, taking into account the principles of sustainable development.

## An overview of literature

Civilization changes have a significant impact on the development of tourism and growth of tourist movement around the world. In addition, there are changes in the behavior of tourists, whose preference is changed from passive to active individual tourism. The area of tourist destination is also changing, because more and more often the increase of interests in the direction of valuable natural areas, is observed (Panfiluk, 2011, pp. 60-72). It can be thus concluded that tourism development is related to the resultant of processes undertaken in the economic, social and environmental spheres.

The essence of sustainable development is equal treatment of three spheres of real processes, i.e. economic, social and ecological spheres. Tourism should, therefore, develop and function in accordance with the paradigm of sustainable development (Poskrobko, 2009, pp. 110-113). The trend based directly on the sustainable development model gives the concept of sustain-

able tourism a broad dimension that can be defined as a form of tourism development, management and tourist activity that maintains the ecological, social and economic integrity of areas, and preserves natural and cultural resources for future generations in an unchanged state (Kiryluk, Borkowska-Niszczota, 2006, p. 110), hence it must be a form of tourism development that respects the environment, ensuring a long-term protection of natural resources (Recommendation of the Council of Europe No. R. 95-10).

An important issue in promoting the sustainable development is the ecological awareness of society, which is currently low. General behavior of tourists usually contradicts the knowledge of ecology principles and the need to protect the environment (Willis, 2010, pp. 1-16).

Nowadays, the need to consciously plan and manage the environment is becoming stronger at the level of municipalities, as well as the appropriate confrontation of environmental resources with their users (Leask, 2016, pp. 344-361). Management of visitors in valuable natural areas should ensure an appropriate relationship between the economy, tourism and environment (Hu, Wall, 2005, pp. 617-635). The increase in tourism should be compatible with the ecological, natural and sustainable development system, understood both as a theoretical category and normative model of economic development and tourism policy (Cheng et al., 2013, pp. 314-320). Sustainable development of tourism in valuable natural areas minimizes the negative effects of tourist impact in the economic, socio-cultural and natural spheres, and at the same time maximizes the benefits of these areas (Kaczocha, Sikora, 2017, pp. 29-38). Local government units should supervise the tourist movement in places particularly vulnerable to destruction and places of natural value. At the same time, they should organize the sharing of tourist attractions in such a way that the places and objects earn on themselves, thus providing funds for their own protection (Wray et al., 2010, pp. 272-290). It should be remembered that caring for the state of nature is to ensure the future generations living in an environment that is unpolluted and friendly to humanity (Marciniuk-Kluska, 2013, pp. 129-140).

When commercializing tourist attractions, an attention should be paid to the Rio de Janeiro Declaration on Environment and Development, in particular (Sawicki, 2007, p. 25):

- Principle 1. Human beings are the center of interest in the process of sustainable development. They have the right to a healthy and creative life in harmony with nature.
- Principle 3. The right to development must be enforced so that the developmental and environmental needs of present and future generations are fairly taken into account.

## Characteristics of the studied area

Kazimierz Dolny is located on the Naleczowski Plateau and is a “pearl” of the tourist cities of the Lublin region and even the country. It is located about 60 km from Lublin, 25 km from Nałęczów and 15 km from Puławy. It has particularly valuable tourist, natural and cultural attractions. In the seventeenth century, it served as a Vistula river port playing an important role in the transport of grain to Gdansk. It is adjacent to the oldest landscape park in the Lublin region. It is a town particularly loved by artists, writers and people related to the broadly understood culture (Sawicki, Mazurek-Kusiak, 2009, p. 1087-1095).

From the point of view of the soil science, Kazimierz is situated in a geographic land made of loess soils that are subject to water erosion and hence many ravines are formed, which favors the roads that run down the water. Road gorges have a negative impact on the local economy as they act as drainage ditches; they carry soil to the roads, make it difficult to access and require continuous maintenance. On the tourist side, however, they are interesting and attractive. The ravine “Korzeniowy Dół” has slopes of up to 85° and a height of about 4 m, above which there are trees and roots. The slopes and bottom of the ravine do not have a vegetal cover, and tourists destroy the surrounding nature by swaying on the roots, digging the cavities in the slopes and drawing them with sticks. Nowadays, it is difficult to get to the fields through this ravine, and the owners of the surrounding allotment gardens are demanding to harden the road leading there. However, there are protests in many circles. The situation is socially and economically difficult, which is becoming a media sensation, not always well used.

Mayor of Kazimierz Dolny asked for expertise on hardening the bottom of the ravine to the Lublin Landscape Park Team and the District Office in Puławy and received two negative comments. This situation is triggering the conflict between different interest groups.

## Research methods

This report uses secondary results obtained from the City Hall of Kazimierz Dolny. These were electronic measurements of the tourist traffic on the Vistula Boulevard and the number of tickets sold to the Castle and the Tower as well as Góra Trzech Krzyży.

It is worth noting that the number of tourists enjoying walks along the Vistula Boulevard and those visiting the Castle with Baszta and Góra Trzech Krzyży is a measure of the demand for using the tourist attractions in Kazimierz Dolny.

The research was carried out by means of a diagnostic survey using the direct questionnaire technique, which concerned the popularity of “Korzeniowy Dół” (Korzeniowy Down). These studies were conducted among 428 tourists in Kazimierz Dolny and Nałęczów, and they were an indicator for forecasting the tourists’ interest in “Korzeniowy Dół”.

“Korzeniowy Dół” is a natural monument and all forms of development should be subject to public consultation, hence additional direct interviews were conducted.

The direct interview focused on the ways to solve the traffic problem in the ravine discussed by three target groups: tourists (276 people), tourism workers from Lublin region (28 people), inhabitants of Kazimierz Dolny (64 people). There were also many free interviews with officials, residents and tourists in the studied ravine. As a supplement to the study, the observation method was used.

Analysis of such compared results of secondary and primary research is a very reliable way to determine the forecast of commercialization of a tourist product commonly known as “Korzeniowy Dół”.

## Results

The loess ravine “Korzeniowy Dół” is a 360-meter section of a 520-meter road connecting Dolna and Górna Streets. The observation shows that due to water erosion and lack of maintenance work, the road at the bottom of the ravine is not passable but merely piled up by tourists. There are many trash leftovers and drawings on the slopes. Currently, the road belongs to the city and from the legal point of view, it should be widely available.

Tourist traffic has never been professionally surveyed in the ravine, but the observation shows that it is quite large. For this reason, data on the intensity of tourist traffic on Vistula Boulevard (electronic measurement), Castle and Tower (tickets) as well as on Góra Trzech Krzyży (tickets), have been used, as presented in tables 1 and 2. It follows that the average number of tourists in 2014-2016 on the Vistula Boulevard was 362,088 and the standard deviation was 13.057. In this case, the tourist traffic has fluctuated more in months than through years. What seems understandable, it was dependent on the time of the year and months. The largest traffic was recorded in May, June, July and August, and the lowest in December and January each year.

**Table 1.** Number of people using the tourist infrastructure of the Vistula Boulevard in Kazimierz Dolny in 2013-2016 (electronic measurement)

Months	2014	2015	2016	average
January	3 048	8 977	4 246	5 424
February	9 224	14 460	13 524	12 403
March	18 417	15 452	11 032	14 967
April	27 794	20 199	16 565	21 519
May	44 311	45 255	53 678	47 748
June	39 575	51 265	36 578	42 473
July	60 043	66 952	62 391	63 129
August	74 530	71 673	81 411	75 871
September	45 260	27 926	35 990	36 392
October	32 854	19 844	16 633	23 110
November	12 895	7 209	9 130	9 745
December	7 630	11 957	8 337	9 308
<b>Total</b>	<b>375 581</b>	<b>361 169</b>	<b>349 515</b>	<b>362 088</b>

Source: author's own work based on data provided by the City Hall.

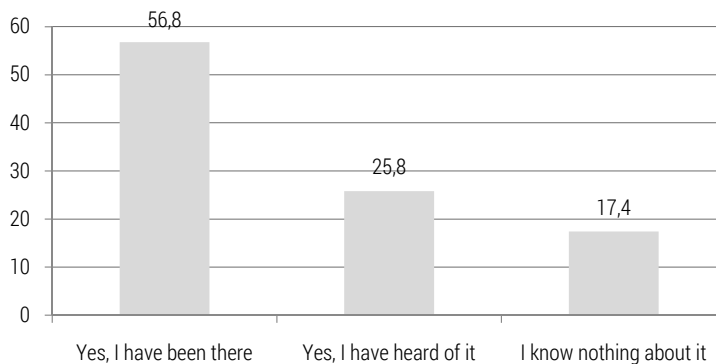
By analyzing the number of tickets sold to Castle and Tower, it turned out that, on average, 146,422 tickets were sold here, which accounted for 50.2% of people registered on the Vistula Boulevard, and generated an average of 732,110 PLN in revenue. It is worth mentioning that the tickets have only been sold here for three years. In the case of Góra Trzech Krzyży, the data was only available in 2016. It turned out that the tickets were purchased by 175,560 people, which generated revenues of 351,120 PLN, and the tourist traffic accounted for 41.2% of traffic on the Vistula Boulevard (table 2).

On the basis of the above-mentioned measurements of tourist traffic in the Castle and Tower and on Góra Trzech Krzyży, approximately the same level of tourists can be assessed in the mentioned ravine (Piontek, 2012). The ticket price for Góra Trzech Krzyży is currently PLN 2, therefore the same price has been accepted for the entry ticket to "Korzeniowy Dół". Both tourist attractions are similar.

**Table 2.** The number of tickets sold and cash receipts in the tourist facilities of Kazimierz Dolny: Castle and Tower as well as Góra Trzech Krzyży

Months	Castle and Tower (ticket 5 PLN, average for 2015-2016)		Góra Trzech Krzyży (ticket 2 PLN – 2016)	
	Number of tickets sold (average for 2015-2016)	Cash receipts in zloty	Number of tickets sold	Cash receipts in zloty
January	1 239	6 195	-	-
February	3 215	16 075	-	-
March	3 428	17 140	3 759	7 518
April	7 029	35 145	6 549	13 098
May	26 729	133 645	42 684	85 368
June	25 098	125 490	14 775	29 550
July	23 243	116 215	26 613	53 226
August	28 109	140 545	50 378	100 756
September	15 470	77 350	12 406	24 812
October	10 225	51 125	15 600	31 200
November	1 701	8 505	2 796	5 592
December	936	4 680	-	-
<b>Total</b>	<b>146 422</b>	<b>732 110</b>	<b>175 560</b>	<b>351 120</b>
% share in tourist traffic on Vistula Boulevard	<b>50,20%</b>	-	<b>41,20%</b>	-

Source: author's own work based on data provided by the City Hall.

**Figure 1.** The popularity of the loess ravine "Korzeniowy Dół" in Kazimierz Dolny in the opinion of tourists from this place and from Nałęczów [%]

Source: author's own work based on study.

With regard to the marketing evaluation of the popularity of “Korzeniowy Dół”, surveys were conducted among tourists, 56.8% of which were here in person, 25.8% only heard of this tourist attraction, and 17.4% had no knowledge of the above (figure 1). In this way, the popularity of this object was very high among tourists, therefore it can be assumed that “Korzeniowy Dół” will visit 56.8% of tourists walking around the Vistula Boulevard. Visitors to the Castle with Baszta and Góra Trzech Krzyży are usually the same people as those walking around Boulevard. Thus, on average, around 206,000 tourists a year can visit it annually ( $362,088 \text{ people} \times 56.8\% = 205,666 \text{ people}$ ), which should bring the expected revenue to 412 thousand PLN in the case of ticketing.

This money could give a job to guides who would explain the phenomenon of karst formation to the tourists and make sure they behave properly in the areas of natural beauty. Car parks and toilets could also be provided. Interviews with tourists indicated that this infrastructure was lacking, and their knowledge of erosion and ravines was very negligible.

It is worth pointing out that there are several road ravines less impressive than “Korzeniowy Dół” in Kazimierz Dolny, which in the past years were hardened with concrete slabs, which was faced both by the approval of residents and officials. For the purpose of this study, a poll was conducted among three target groups on how to tackle the road problem (table 3).

**Table 3.** Opinion of tourists, tourism industry workers and inhabitants of Kazimierz Dolny on the hardening of the road leading through the loess ravine “Korzeniowy Dół”

L.P	Target group of respondents	Way to solve the road problem [% of respondents]			
		cobblestones	concrete slabs	other forms of cure	leave the ground road
1	Tourists	0,0	0,0	3,8	96,2
2	Employees in the travel industry	0,0	0,0	0,0	100,0
3	Residents of Kazimierz Dolny	20,0	51,7	15,0	13,3

Source: author's own work based on study.

It turned out that none of the respondents recruited from tourists or travel industry employees was for fixing the bottom of ravine with pavement or concrete slabs. The cobblestones was approved only by 20%, and the concrete slabs by 51.7% of residents of Kazimierz Dolny. Other forms of hardening was allowed only by 3.9% of tourists and 15.0% of the population, while 96.2% of tourists, 100% of workers and 13.3% of inhabitants stood for leaving the ground road (table 3).



By analyzing the above presented research results, they should be interpreted taking into account the qualitative characteristics of tourist products, creating the image of Kazimierz Dolny – city with the tourist function as well as cooperation of tourist entities (Balińska, 2012, p. 223; Glińska, 2010, p. 130; Wiatrak, 2014, p. 179).

It is also worth noting the usefulness of the “Korzeniowy Dół” for natural and educational tourism, including leisure walks, and Chojnacka, Wilkanca (2010, p. 81) research shows that this latter feature is particularly favored by tourists rushing in protected areas.

## Conclusions

“Korzeniowy Dół” is one of the products that create the image of Kazimierz Dolny as a tourist town and should be developed in such a way that erosion processes are maximally slowed down.

The bottom of the ravine should be drained and water should be drained through a pipe to the ditch. The bottom of the ravine should remain a ground road used only for pedestrian traffic, as it is only possible way to this tourist and natural attraction preserve for other generations.

Visiting the ravine should be paid, like the entrance to Góra Trzech Krzyży, which will contribute to the protection of attractions and will help raise funds for the expansion of accompanying tourist infrastructure. The traffic forecasts here are optimistic, because, assuming that the ticket price will be PLN 2, and “Korzeniowy Dół” will be visited by 206,000 people, the average annual income will be at the level of PLN 412,000.

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