TURIZAM
Volume 26, Issue 2
105–113 (2022)
ORIGINAL
SCIENTIFIC PAPER

Evaluating Waterfront Landscape Aesthetics as a Tourist Attraction – Case Study of the River Tisza, Hungary

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Received: December 2020 | Accepted: September 2021

DOI: 10.5937/turizam26-29744

Abstract

This paper represents a methodological attempt to evaluate the natural and built riverside environment of the Tisza river, from the point of view of landscape- and environmental aesthetics and features, which might serve as background for river tourism. The research methodology was based on the theoretical division of the riverside into more or less homogeneous, easily observable sections (called visual units), and then they were evaluated one by one. Objectivity was one of the most important aims; researchers attempted to achieve it by applying the value-selection method. Following the evaluation of each sample section of the riverside area, all sections were then assigned to three different categories. Those sections which were capable of generating positive feelings were placed under the category 'Attractive', those which were capable of arousing less enthusiasm were assigned to the category of 'Neutral', and those which could be characterized by visually conflicting elements were categorized as 'Unattractive/Repulsive'. As a result of the findings of a tour of inspection and the compilation and survey of the photo documentation at the researchers' disposal, they were able to point out that the sample area was not characterized by visual conflicts of considerable significance, consequently, none of the chosen sample units fell into the category of 'Unattractive'.

Keywords: *Landscape and environmental aesthetics, Evaluation method, Tisza river, River tourism*

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Introduction

The Tisza river, the 'main street' of Szeged, was selected as the research topic of our investigations in the area of landscape- and environmental aesthetics. This research began as part of a joint Hungarian–Serbian cross-border developmental project, which was launched in 2018 and co-financed by the European Union (Project No. Interreg-IPA CBC HUSRB/1602/31/0204). The primary aim of the project was to focus on various sections of the river in the two countries; we explored the river tourism related characteristics of these sections and also identified prospects for their further development. We have completed the exploration of the touristic values of the Hungarian section of the river and its immediate environment, an area stretching from the country's border as far as Tiszakécske. There is a potential that this area will become an important international water route in the future. Consequently, the visual features of the riverside may gain more significance, they may become part of the touristic attraction for those who travel on the river. The major components of the scenery include the flood zone forests; further, some landmarks of the built environment in the vicinity of settlements and cityscapes with emblematic buildings also play a role and represent a specific value for those on the river. The scenery also reveals information on environmental conditions and it affects humans psychologically as well: while a varied and healthy natural or built environment may be inspiring, a denuded and neglected landscape sends only sad and depressing signals. In other words, environmental degradation can be perceived and evaluated as a visual conflict. Ourresearch in the future will aim to explore and map those potential visual conflicts which may negatively influence travellers' sight and mind. We also intend to draw conflict maps of the area in question.

Since the 1980s, tourism has been seeking a new path that not only avoids negative impacts as much as possible but has a positive impact on nature, society, culture and the regional economy (Gonda, 2017). The preserved parts of nature or those ones that are intended to be protected could become potential eco-tourist attractions if they harmonize with nature as well as tourist and recreational activities (Nagy, 2008, Tešin et al. 2020). Of course, it is worth developing the tourist offer along the Tisza river and its settlements with complex tourism activities and forms such as ecotourism, educational tourism, historical and archaeological tourism, cultural tourism, gastronomic or food tourism, rural tourism, ethnographic tourism, museum tourism and other local opportunities (Košić et al. 2017, Košić et al. 2019).

The needs of tourists have also been changing recently. Due to radical environmental changes and a significant decrease in green areas, people are more and more eager to visit places of natural beauty. Travellers like variety, thus their attention focuses on those features of the landscape which represent positive visual experience for them, different from those they see in their everyday lives (Urry, 2002). A kind of spiritual transformation is also an inherent part of each visual experience; some landscapes are capable of enchanting visitors with their beauty. As a consequence, it is the aesthetic value of these places that makes them popular tourist destinations (Karancsi, 2014). So that to gain a visual experience, physical effort is often required, therefore many forms of sports tourism can be intertwined with reaching the targeted attraction (eg water tourism, hiking, climbing, caving) (Győri, 2020).

In order to help travellers reach their destinations and enable them to experience an environment of extraordinary beauty at the same time, some concrete means are needed, designed to call the potential visitors' attention to the specific scenic spots. Nature films, travel catalogues, or photographs might serve this purpose, or, sometimes specific publications are launched, including the one compiled by MacCannell, in 1976 for river tourists. The author

called these specific tools 'markers'. The category of markers includes tourist-bought souvenirs, or the tourists 'own photos, all of which later play a significant role for them when trying to recall and relive the original experience (Culler, 1981).

Methods

Our paper is primarily aimed at introducing the results of the project into the characteristics and potentials of river tourism as recreational or sports activity. It was the unique natural environment itself in the form of a tour on the river which served as background for our research; it was complemented by the evaluation of architectural visual elements of riverside settlements and, occasionally, there were some infrastructural objects of water management as well to be taken into consideration. Our task was to evaluate this specific scenery from the aspects of landscape and environmental aesthetics, the results of which – in relation to the riverside – were then summarized in the form of a rating table. The difficulty of the task was that as the riverside never offered a static view, researchers had to face a continuously changing scenery instead.

The first step in our work included a two-day survey of the place in question, i.e. travelling along the Hungarian sample section of the Tisza river (Except for the city of Szeged and the area near the Hungarian–Serbian border, because this section had already been explored and photographed earlier. On that occasion 65 photos had been taken partly from the riverbank, partly from a boat). During our boat trip a total of 3,842 photos were taken of the right and also of the left bank of the river. In order to perform the task of rating, those methods were used which had already been at our disposal when formerly we had evaluated certain street and settlement views (Karancsi et. al. 2012; 2013; 2017; 2018). We also used the findings of one of our earlier studies, which had summarized the geographical and ecological characteristics of the given area (Oláh et. al. 2019). The total length of the river section to be surveyed was 125 river kilometers; thus, when planning the pictures, it was necessary to divide the route into smaller static sections – so-called visual units –, which could be easily monitored by sight, and which also offered relatively homogeneous details of wooded areas or built-in parts of settlements. It was best to survey these visual units from the midline of the river, knowing that minor details – including some visual conflicts – were difficult or impossible to observe from that distance. However, when tourists travel on water, these details are also difficult for them to identify, consequently, the restricted nature of our perception did not represent a problem in research methodology. When checking the digitized photographs, several overlaps were identified, so it was evidently necessary to select the photos. In the end, there were 352 separable visual units left.

The visual units of the surveyed section of the bank of the Tisza river were classified into two types: 1. wooded areas in the flood zone 2. Settlement view zones on the basis of the dominance of natural or artificial (built-in) elements in the given visual unit. Thus, the unit in which the proportion of green plants visibly exceeded 50% was categorized as a wooded area in the flood zone. On the other hand, in most cases both types included elements from both categories; consequently, each unit had to be evaluated individually. The effort to be objective represented a point of view of extraordinary significance in the research; this is why the individual visual units were assigned to three different categories by using the method of value selection in the evaluation process. Value No. 1 is associated with elements of very poor conditions; value No. 3 is a visual element of perfect condition, while there is a neutral category, visual ele-

ment No. 2, which was assigned in the case some problems could be identified, but not irreparably; there was some potential for improvement, too. By using this system, we could achieve that the same visual unit was assigned identical rating by the majority of evaluators. In certain cases there were units which had only wooded areas in them, or, in the case of riverside settlements, there were only built-in units, exclusively with architectural elements in them. In these cases, double points were calculated either for the natural or for the built-in environment, because we did not want to work with distorted figures. The same principle was followed when one element had a disproportionately greater value. In addition to assigning the basic points for the natural and the artificial elements, extra points could also be given in the presence of unique, value-increasing factors. Theoretically, in some cases, the water surface could have been evaluated as a value-increasing factor, since reflections in water double the effectiveness and the beauty of the sight. On the other hand, in this case this effect was not considered as a value-increasing factor, since our main target, the riverbank, by its own geographical location, always borders on water. On the other hand, there were certain visual elements, so-called visual conflicts, which had negative effects; noise pollution or unpleasant smell represented value-decreasing factors (Figure 1). In case of the occurrence of visual conflicts – depending on their dominance – one or two points were subtracted from the overall number of points. For the details of the evaluation system and the explanation given to each category, see Table 1.

Table 1. *Rating Table of Visual Units*

visual unit					
settlement-view section	building/structure	1	2	Buildings or structures in very poor condition (missing plaster, loosened roof)
		2	4	Buildings or structures in average condition with minor, but visible problems (cracked wall, plaster-or paint deficiencies)
		3	6	Renovated buildings or structures in perfect condition
	vegetation	1		Neglected, incomplete or unhealthy line of trees, or area with trees or shrubs
		2		Line of trees or area with trees or shrubs in relatively good condition
		3		Line of trees or area with trees or shrubs in perfect condition
	U	+1		**Natural or artificial element of unique value**
	visual conflict	-1		Minor Visual conflict (visible waste on the bank, graffiti, lack of fitting, damage by storm, source of unpeasant smell)
		-2		Serious visual conflict (visible waste on the bank, graffiti, lack of fitting, damage by storm, source of unpeasant smell)
wooded areas of the flood zone	vegetation	1	2	Flood zone vegetation with signs of considerable degree of scarceness, withering, homogeneity and unnaturalness
		2	4	Flood zone vegetation with signs of scarceness, with varied species of trees in relatively good condition
		3	6	Flood zone forest community of high degree of naturalness, with varied species of trees in good condition
	building/structure	1		Buildings and structures in very poor condition (missing plaster, broken or missing doors and windows, loosened roof)
		2		Buildings or structures in average condition with visible minor aesthetic problems (cracked wall, plaster or paint deficiencies)
		3		Renovated buildings or structures in perfect condition
	U	+1		**Natural or artificial element of unique value**
	visual conflict	-1		Minor visual conflict (visible waste on the riverbank, or in the river, damage by storm, open aerial wires, source of unpleasant smell)
		-2		Serious visual conflict (visible waste on the riverbank or in the river, damage by storm, source of unpleasant smell)

Figure 1. Possible visual conflicts on the Tisza river

Research results

From the group of visual units we have selected those ones which were able to demonstrate the characteristic features of each individual type. The selected units were evaluated by each member of the research group independently of each other. The points were given on the basis of the descriptions of the above table. The differences between the individual points were minimal and negligible, so the summary of results are given further in this paper.

The evaluation of five visual units of the settlement-view section of the riverbank is presented in Table 2. Both the natural and the artificial elements can be detected in them, with the dominance of the second one.

- The renovated buildings of the *Upper Riverside in Szeged (Felső-Tiszapart)*, including the Novotel Hotel and the buildings of the Pick Salami Factory as well as the presence of boats of different type represent the dominant elements of this visual unit; consequently, the points given were doubled in the evaluation process (6). The vegetation also looked beautiful and healthy in the pictures (3). A unique feature can also be detected in this picture: the Pick towers themselves represent a sight of significance in the history of industry (+1). There are no elements in the picture which would justify any points deduction, thus, the total number of points in this case amounted to the maximum, i.e. 10.
- In the *Harbour of Tápé* the artificial elements dominate, including bumping posts, various types of machinery and boats, which do not represent a high level of aesthetic value (4). Vegetation, although in a satisfactory condition, plays a secondary role in this environment (3). Due to the presence of graffiti, one point was deducted, so the total number of points in this case reached 6.
- The natural and the artificial elements of the *Tiszavirág holiday resort* are counterbalanced. Since both the buildings and the green areas are in satisfactory (aesthetic) condition, in this case the maximum number of points was given, i.e. 3+3, which meant a total number of 6.
- The modern and spectacular *bridge on M43*, which was built a few years ago, represent a dominating element in the picture (6); the homogeneous wooded area next to it, on the

one hand, does not give onlookers the impression of naturalness, and, on the other hand, it plays only a subsidiary role when compared with the dominant sight of the bridge (2). In the opinion of the evaluators the unique architectural work of the bridge deserved an extra point (+1). Thus the total number of points amounted to 9.

- The *holiday resort of Mindszent* features some nice, though eclectic architectural designs, so this sight was awarded with 4 points. The vegetation around the buildings was also evaluated as of mixed aesthetic condition (2). Due to the lack of overall harmony and the condition of a variety of interfering effects, eventually one point was deducted. Thus the total number of points became 5.

In the next phase of our work those visual units were evaluated which belong to the most typical areas of the riverside, i.e. the wooded lands in the flood zone. In these units the evaluation of the vegetation played the most significant role (Table 3).

- When evaluating the picture of the *neighbourhood of Algyő I*, in addition to wooded areas of mixed (aesthetic) condition (4), in the picture an artificial opening can be seen with high power lines across the river. Although the pylons are of good condition (3), the power lines above the green areas and the river represent an unnatural and disturbing view, it represents a visual conflict (-1 point). In summary, the total number of points amounted to 6.
- The second picture of the *Algyő neighbourhood II* represents a visual unity of pure nature! This is the most aesthetic version of the so-called gallery forests that occur in flood zones. It is an almost impassable forest, it gives the impression of a native forest with lianes covering huge areas of forests of aspens and willows, representing a special group of plant communities. They mostly consist of wild grapes and echinocystis lobata (6). Due to the unique features of this area an extra point was awarded by the evaluators (+1). Thus, the total number of points amounted to 7.
- *The area of Szentes* is a visual unit with varied (aesthetic) condition of the vegetation; therefore it was awarded with four points only. There was not any unique feature identified in this unit, consequently, no extra points were given, and no points were deducted either. Thus the total number of points amounted to 4.
- *The beach at Mindszent* offers an exciting view. It is due to the sandy beach, which is, due to erosion, is dissected by varied microforms. Stripes of various mud plant communities give special rhythm to the landscape (they represent a unique feature, too), while there are groves with huge, spectacular trees at the end of the beach area (6+1). The beach also has several artificial objects in extremely good condition (3). Thus the number of total points was 10.
- *Vesszős* is an area of planted poplars. The height of the trees is identical, the whole area has a homogeneous appearance, so this unit does not give the impression of naturalness (4). There was not any unique feature in this scenery, consequently, no extra points were given, and no points were deducted either. Thus the total number of points remained the same.

Then, the sections, independently of the type of the riverside, were subdivided into three categories on the basis of the value points given to areas representing specific types of sample units. If the total number of points was from 7 to 10, the area was classified as attractive, generating positive feelings. From 4 to 6 points the area was classified as neutral, not evoking any special feeling, while from 0 to 3 points the view was classified as unattractive, repulsive and

Table 2. *Visual units by the Tisza river I. (Settlement-view section)*

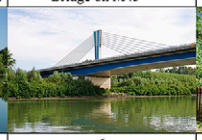
	Upper Riverside in Szeged	Harbour of Tápé (Szeged)	Tiszavirág holiday resort, Szeged	Bridge on M43	Holiday resort of Mindszent
					
building/structure	6	4	3	6	4
vegetation	3	3	3	2	2
unique element	1 (Pick factory)	0	0	1 (bridge M43)	0
visual conflict	0	-1	0	0	-1
total value	10	6	6	9	5

Table 3. *Visual units by the Tisza river II. (wooded areas in the flood zone)*

	Neighbourhood of Algyő I.	Neighbourhood of Algyő II.	Neighbourhood of Szentes	The beach in Mindszent	Vesszős
					
building/structure	3	0	0	3	0
vegetation	4	6	4	6	4
unique element	0	1 ("native forest")	0	1 (mud plant communities)	0
visual conflict	-1	0	0	0	0
total value	6	7	4	10	4

displeasing. Depending on the type of the riverside area, each category was marked in different colours (Figure 2). In this way the spectacular and attractive places of aesthetic value were made clearly identifiable also in the map. Using GPS coordinates these places appear in mobile phone applications too, which were developed for river tourists. It is also important to note that these applications were one of the main aims of our research, since any unique landscape as a tourist attraction represents an appeal of special significance for travelers. On the other hand, the less attractive, more problematic places are also marked in the map, using the colour code. So, it can be easily seen in the map where the places of extraordinary natural beauty are, and where the built (artificial) sections of the riverbank can be found. By calling the attention to problems and the necessity of interventions, we also raised the possibility of removing and solving the visual conflicts. Consequently, a map of this kind may be informative not only for tourists, but for those people too who are responsible for the maintenance of the area.

settlement-view section	0 - 3		Unattractive settlement view
	4 - 6		Neutral settlement view
	7 - 10		Attractive settlement view
wooded areas of the flood zone	0 - 3		Unattractive landscape
	4 - 6		Neutral landscape
	7 - 10		Attractive landscape

Figure 2. Categories for qualification based on value-points

Conclusions

The methodology used in our study has proven applicable to describe and evaluate the visual units of areas near the banks of the Tisza river from the aspects of lansdscape- and environmental aesthetics. Thus a possibility has opened up to mark the touristically marketable aesthetic sections of the riverbank in maps as well as to point out those sections which are aesthetically less attractive and which embody visual conflicts. During the first stage of our work, when the place was surveyed and the photo documentation was made, we concluded that luckily no visual conflicts of great significance – as shown in Figure 1 – could be identified, so none of the chosen sample units fell into the category of unattractive places, heavily burdened with irreparable visual conflicts. Negative evaluation was rather made on the basis of less varied features, the homogeneous nature of the landscape, the unnaturalness of its wooded areas, the presence of dry or unhealthy trees, or the presence of some elements of poor condition in the artificial environment.

In conclusion, from the aspects of aesthetics, fortunately, there are no big problems for the moment. At the same time, it is worth noting that pollutants – sometimes deriving from abroad, sometimes from other parts of Hungary – may appear in this zone during flood time. Occasionally it may lead to fish death of significant proportions. An example of this disaster was the cyanide poisoning in 2000; this disaster was due to a cyanide spill in Romania. Events like that may have a tremendous influence on the landscape as a tourist attraction. The smell may also be a deterrent. Communal waste is a less serious problem, but in great quantities it causes aesthetic problems too. Waste forms floating islands in the river and as such they block traffic, get stuck in the wooded areas of the flood zone and in harbors'. In September and October another problem can be identified, namely, the appearance of large areas of reed-grass, duckweed and natans floating on the surface of the river. This unpleasant surface appears on the Körös rivers and from there it spreads toward the south (This is the result of the drainage of the water of the Hortobágy–Berettyó main canal in the autumn).

Another conclusion is that regular monitoring of the sections of the Tisza river is needed in order to discover signs of decaying forests. It is a task of great significance, and when done on time, the wooded areas can be rehabilitated. It has to be noted too that not only the quality of water is important, but it is equally significant that the largest possible section of the riverbank needs to be transformed into a genuine attraction and a source of joy for tourists who travel on the river.

Acknowledgment

This research was carried out as part of the HUSRB/1602/31/0204 project entitled „WATERTOUR – Development of water tourism on waterways connecting Hungary and Serbia".

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