In recent years, the term "industrial tourism" has been increasingly used in the literature. It describes an area that includes industrial monuments and abandoned buildings, and above all rare ones that are still in function. Industrial tourism includes all plants used for food processing, wood processing and textile industry, there are also mills, ports, mines, car and aviation industry, shipyards, etc. Within the doctoral dissertation entitled "Potentials of cultural-historical and economic heritage for the development of industrial tourism in the Timok region", a research was conducted that deals with the growing interest of industrial tourism in Eastern Serbia, more precisely in the Timok region. This branch of tourism is no longer a sphere of interest only for certain groups of technical experts, but also for regular tourists who are interested in touring certain regions. The aim of the research is to present the possibilities for the development of industrial tourism in the Timok region, as well as to obtain data on the current situation. The research is based on the experiential information of tourism workers who, due to the nature of their work and interests, are relevant to the proposed topic. The surveyed respondents are employed in the field of tourism in various positions, as well as students who are educated in the field of tourism. The data obtained during the research indicate respondents believe that the media do not sufficiently inform potential tourists about industrial tourism attractions, the potential of the tourist offer, but also about the Timok region itself, both locally and beyond, in Serbia and abroad. Such data indicate the possibility of improvement through the application of an adequate strategy to promote and inform potential users, as well as the insufficient usage of the industrial potential of the region itself. Investing certain resources in the marketing and development of industrial tourism would create additional demand, and this would result in the improvement of the tourist offer. Valorization of industrial heritage in Eastern Serbia can stimulate regional identity, revitalize the area and create additional tourist attractions. Plans and results from certain projects of this type are very important for the region, but also for the state.

Keywords: Tourism, industrial tourism, development, Timok region, Serbia

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DOI: 10.5937/SJM16-32147
1. INTRODUCTION

Tourism has always had a positive impact on economic development and brought various changes, the personal income and free time of citizens most significantly contributed to the tourism development. Recently, the term "industrial tourism" has been increasingly used in the literature. It represents the area that is focused on industrial monuments and abandoned buildings, as well as those rare ones that are still in function. Industrial tourism includes all food processing plants, wood processing and textile industry, mills, ports, mines, automotive and aviation industry, shipyards, etc.

Within the doctoral dissertation entitled "Potentials of cultural-historical and economic heritage for the development of industrial tourism in the Timok region", a research was conducted regarding the growing interest in industrial tourism in Eastern Serbia, more precisely in the Timok region. This area of tourism is no longer of interest only for limited groups of technical experts, but also for other tourists who are interested in touring this region. There are many examples in Europe and the world of how, for example, abandoned mines can be "awakened" by renovation and become real tourist attractions that operate successfully.

Eastern Serbia includes the municipalities of Kladovo, Majdanpek, Negotin, Bor, Boljevac, Zajecar, Knjazevac and Sokobanja. It borders Bulgaria to the east and Romania to the north, with over 240,000 inhabitants. The total area is over 7000 m², i.e., makes up 8.1% of the territory of the Republic of Serbia and has 263 settlements (two cities and six municipalities). Eastern Serbia has a harsh climate, with large differences in precipitation that are unfavorable, but also with large temperature differences, so it can be said that it belongs to the continental climate zone. Copper and electricity production are the main activities in this area, as well as forestry, agriculture and wood processing industry.

It is important to point out that the potentials of this region are extremely large due to the diverse offer (from mountains over 2000 meters above sea level where you can enjoy skiing, to beautiful lakes and rivers where you can swim and fish) and it abounds in natural beauty. The industrial heritage is very important, it represents the great work and effort of our ancestors.

The attention of tourist workers should be focused primarily on the development of new attractions through special education and research. Renovating some mines or basins as tourist attractions would allow local people to get jobs and increase their incomes. Such ideas require great enthusiasm of tourist guides, as well as good marketing. But, without the cooperation of the local self-government and tourist boards, projects of this type cannot be implemented. There is an opportunity for the development of the Timok region, it is necessary to create recognizable tourist attractions when there is a basis for such ideas. Figure 1 shows certain terms that are useful for the classification of industrial tourism when looking at the whole concept of tourism as an industry, and in certain ranges. They range from general, conventional, forms of tourism and tourist attractions, characteristic - special attractions, to commercial tourism - attractions where tourists cannot experience what is happening behind the "stage". In the end, there is industrial tourism in which it is really possible to experience what is happening behind the "stage", according to Frew (2008).
When looking at the life cycles of tourist routes, industrial tourism is practically still at the beginning, and its great potential for further development is evident. The reason is the growing interest of tourists and raising awareness of what constitutes the heritage of a country and people, ie. of its cultural tourism. There are several different reasons: cultural tourism is nowadays a well-formed and economically one of the most promising market segments in modern tourism and destination management, whether it is an urban or rural environment. This category of tourism enables visitors to make the experience more intense, complete and extensive, and above all to be based on stronger participation in everyday activities and in the recent history of a particular tourist destination (Vargas-Sánchez, 2015).

2. INDUSTRIAL TOURISM

When industrial tourism is mentioned as a term, it refers to a special form of tourism that has increasing importance due to the fact that the desire to visit and see old factories and plants is especially interesting to domestic and foreign tourists who visit certain areas. They want to know how social development has progressed over the centuries and how people used to live, so they compare it all with modern events and trends (Ilić, 2019).
Abandoned industrial facilities and their dedicated infrastructure are often the focus not only of those involved in the preservation of landmarks and monuments of industrial and historical origin, but have recently begun to attract other parties with their unusual characteristics. As a consequence of this interest, a rather interesting branch of tourism has emerged - industrial tourism, which allows tourists to recognize the typical industrial environment and its development by knowing the industrial monuments of different types (Bujok et al., 2015).

Industrial tourism has been very popular in Western Europe in recent years. Most visitors opt for industrial tourism, especially the automotive industry, after that they are interested in crafts, but also the food production sector. This is especially important for cities that have a strong industrial base, where industry is developed and where cultural heritage is preserved, this also provides various opportunities to strengthen the economic structure and increase the tourist offer (Gržinić et al., 2009).

Industrial tourism creates a bridge between business and society. Both public and private sectors are interested in a good relationship between the industries and the communities in which they find themselves. Moreover, industrial tourism can be an effective means of co-branding the region, especially if the participating companies fit into the (economic) image that the region wants to form and if the companies want to highlight their integration into the region (Otgaaar, 2012).

The essential relationship between international tourism and the Third World falls within the pattern of an industrial society initiative that determines the response in emerging countries. One of its main attributes is defining "wealth" by the characteristics of the industrial elite, "poverty" by their relative absence, and attributing to the notion of "wealth" as the object of universal desire. In tourism, as in other areas, the way out of colonialism has to do with examining the implicit attitudes underlying the international relations formed during the era of European expansion (Hiller, 1976).

The most important impacts of tourism on the economy are the following (Bošković, 2009):

- affects the final goods and services, as well as the national income, and has an impact on the growth and development of economic activities in the field of tourism,
- affects the balance of payments, the working population and investments in various areas of the economy (investment activity and financial stability), but also has an impact on the development of underdeveloped climates.

In many developed countries, investors have recognized the great importance of old factories being adapted into museums, all with the aim of attracting tourists to certain places, but also to increase the number of visits to accommodation facilities. All this results in higher revenues from tourism (Ilić, 2019). Buildings that can be used by tourists interested in industrial tourism differ in their original purposes, the number of employed people (old and current employees), ownership (whether private or public), technology, equipment, etc. (Muhi et al. 2018).

3. DATA AND METHODS

The survey entitled "Potentials of cultural, historical and economic heritage for
the development of industrial tourism in the Timok region" was conducted through an online survey, as well as in person through a survey questionnaire. Due to the relevance of the views, it was mandatory for the respondents to be from the field of tourism, and for that reason it was mandatory to state whether they are employed or students in tourism. Likert's (Likert, 1932) five-point scale was used as a model according to which the survey was made, and it serves to obtain data for each statement through the degree of agreement, i.e. disagreements. All the answers are finally added up and the opinion of the respondents is obtained. Numbers 1 to 5 were offered to respondents to determine their position on a particular topic. Number 1 indicates that the respondent completely does not agree with the offered statement, and number 5 indicates that he completely agrees with a certain offered opinion.

The survey contained 23 questions, five of which were demographic in nature, and the rest were divided into three groups to examine key factors that may affect the development potential of industrial tourism in the Timok region. The first group of questions, which includes six questions, refers to marketing aspects, the second group of questions, which contains seven questions, is related to the potentials of industrial tourism, while the third, which includes five questions, was focused on the potentials of the Timok region.

4. RESULTS

217 respondents participated in the research, of which 48.8% were female and 51.2% male. Data collection lasted 28 days during the month of February 2021.

From the table of total results (Table 1) we can see the average scores of all questions used in the research. The differences in the attitudes of the respondents are clearly visible, which indicate the current problems related to the development of industrial tourism, but also the possibilities for improving this branch.

If we single out the results related to the marketing and representation of industrial tourism in the Timok region, we can see that there is a low average value (1.98), which indicates shortcomings in this segment and that there is room for improvement. The Timok region is not sufficiently represented in terms of marketing and such a trend should change due to the further progress of this area and its advertising.

When the results related to industrial tourism are singled out, the average result is 3.86, which indicates that this tourist branch has potential and is interesting for potential tourists. The industrial tourism of the Timok region offers a lot of entertainment to visitors, but it is necessary to have a good plan for investing capital in certain offers.

By highlighting the results related to the Timok region, we can see that the average is 4.1, which shows the great potential of the climate for development and the possibility of progress. Such data testify that the Timok region is a potential "tourist treasure".

5. DISCUSSION

Respondents were divided into four age groups (18-30, 31-40, 41-50 and 51-65), and most participants were from the 41-50 age group (28.1%), followed by age respondents 18 to 30 years (25.3%). 41% of respondents have secondary education, 26.7% more, while 33.2% of respondents have higher
education. Primary education was not marked by any respondents. 78.8% of respondents are employed in the field of tourism, while the rest of the respondents indicated that they are a student in the field of tourism. When asked in which part of the Republic of Serbia do you live, 33.2% of respondents indicated that they live in Western Serbia, 26.3% in Eastern Serbia, 20.3% in Central Serbia, 12.9% in Southern Serbia, while 7.4% of respondents from AP Vojvodina.

As many as 43.8% of respondents answered that industrial tourism and its localities are not sufficiently represented in marketing in Serbia (on television, social networks, etc.), while only 4.6% of respondents said that they did. 53.9% of respondents said that industrial tourism is not sufficiently represented in the tourist offers of agencies in Serbia. When asked whether mining tourism is sufficiently represented in

Table 1. Obtained results of the survey

| Survey question:                                                                 | Score: |
|---------------------------------------------------------------------------------|--------|
| Industrial tourism and its localities are sufficiently represented in marketing in Serbia (on television, social networks, etc.) | 1.89   |
| Industrial tourism is sufficiently represented in the tourist offers of agencies in Serbia | 1.83   |
| Mining tourism is sufficiently represented in marketing (on television, social networks, etc.) | 1.88   |
| Mining tourism is sufficiently represented in the tourist offers of agencies in Serbia | 1.92   |
| The Timok region is sufficiently represented in marketing (on television, social networks, etc.) | 2.11   |
| The Timok region is sufficiently represented in the tourist offers of agencies in Serbia | 2.24   |
| Industrial sites in Serbia can be an interesting tourist offer for visitors (factories, workers’ settlements, craft workshops, transport systems, old and modern industrial units, mines) | 3.75   |
| Serbia has industrial capacities that could be included in the tourist offer | 3.86   |
| Industrial tourism in Serbia can improve the industrial, as well as tourist, potentials | 3.79   |
| Serbia’s industrial plants can be interesting places for tourists to visit | 3.77   |
| Abandoned industrial mining sites in Serbia would be an interesting tourist offer if they adapt to tourist needs | 3.93   |
| Mining mines in Serbia stand out for their specificity and can be an interesting destination for tourists | 3.98   |
| Industrial and mining exhibits that are exhibited on the streets of the city of Bor (dump truck, pit locomotives and supports, wagons for transporting workers, etc.) are attractive | 3.94   |
| The tourist offer of the Timok region is recognizable by its diverse and specific natural resources | 4.03   |
| By including its industrial and mining sites, the Timok region would improve the tourist offer and capacities of the entire region. | 4.02   |
| The developed mining tourism of the Timok region can preserve the mining heritage and support the local community | 4.09   |
| The Timok region has enough recognizable industrial sites that can be included in the tourist offer | 4.13   |
| The mining mines of the Timok region are recognizable as localities and as such would contribute to the tourist offer | 4.189  |
marketing (on television, social networks, etc.), 47.9% of respondents answered that it is not, and the same percentage believes that mining tourism is not sufficiently represented in the tourist offers of agencies in Serbia.

36.9% of respondents believe that the Timok region is not sufficiently represented in marketing (on television, social networks, etc.), while a slightly smaller number (34.6%) believe that the Timok region is not sufficiently represented in the tourist offers of agencies in Serbia.

When asked whether industrial sites in

![Figure 2. Marketing related scores](image)

![Figure 3. Industrial tourism potential scores](image)
Serbia can be an interesting tourist offer for visitors (factories, workers' settlements, craft workshops, transport systems, old and modern industrial units, mining mines), as many as 36.4% of respondents answered with a grade of 4, but the question of whether Serbia has industrial capacities that could be included in the tourist offer was answered by the same assessment by 34.1% of respondents, while 33.2% of them answered that they completely agree.

34.1% of respondents believe that industrial tourism in Serbia can improve the industrial and tourist potentials, and whether industrial plants in Serbia can be interesting places to visit tourists with a score of 4, 33.2%, and a score of 5 as many as 31.8% of respondents. According to the respondents, abandoned industrial mining sites in Serbia would be an interesting tourist offer if they adapt to tourist needs, because 67% of them gave a grade of 4 and 5.

Mining mines in Serbia stand out for their specificity and can be an interesting destination for tourists, concludes as many as 74.7% of respondents (grades 4 and 5). Also, 71.4% of them think that the industrial and mining exhibits that are exposed on the streets of the city of Bor (dumpers, pit locomotives and supports, wagons for transporting workers, etc.) are very attractive. The tourist offer of the Timok region is recognizable by its diverse and specific natural resources, according to 80.1% of respondents (rated 4 and 5). In order for the Timok region to improve the tourist offer and capacities of the entire region by concluding its industrial and mining sites, 77% of respondents conclude with grades 4 and 5. They also believe that developed mining tourism in the Timok region can preserve mining heritage and support the local community (78.4% with ratings 4 and 5). The Timok region has enough recognizable industrial sites that can be included in the tourist offer (82.1% with...
grades 4 and 5), while the mining mines of the Timok region are recognizable as sites and as such would contribute to the tourist offer (82.9% with grades 4 and 5), which shows the great interest of the population of Serbia for this type of tourism in the Eastern part of the country.

The aim of the research is to present the possibilities for the development of industrial tourism in the Timok region, as well as to obtain data on its current state. The research is based on the experiential information of tourism workers who, due to the nature of their work and interests, are relevant to the proposed topic.

The data tell us that the respondents believe that the media don't inform potential tourists enough about industrial tourism, the potential of the tourist offer and the Timok region itself, both in the local environment and beyond, in Serbia and abroad. This directly indicates the possibility of improvement by applying an adequate strategy to promote and inform potential users.

Also, the tourist agencies in the Timok region are not sufficiently active in marketing their offer, are the opinions of the respondents. Industrial sites, from factory, craft and mining facilities to their exhibits in the cities of the region, are not sufficiently present in the tourist offer. Without an adequate supply of travel agencies, it is not possible to significantly increase demand, and this is exactly what industrial tourism in Serbia needs. Improving this field would significantly affect the prosperity of the entire region.

Nevertheless, the vast majority of respondents (80%) have a positive attitude about the potential tourist offer, the potential of industrial tourism and the social and natural wealth of the Timok region. This shows that the tourist and natural potential of the Timok region exists, especially since the respondents from tourism themselves are educated and informed about the state of tourism in the region.

This research should encourage further research regarding the industrial heritage, its valorization, preservation and identify some new ways for the development of the region. It is necessary to promote local, cultural, scientific and entrepreneurial values in order to better present the offer of industrial tourism in Serbia in the countries of the region, but also around the world. The world market is very important for industrial tourism, interesting industrial plants and mines that have been forgotten over time can be very interesting for those who want to feel part of the cultural and historical heritage of a country.

6. CONCLUSION

The results show differences in the opinions of the respondents, the representation and offer of industrial tourism and the Timok region in the agencies and media. All this shows an interest that is significantly lower than the current interest and opportunities that are provided. Such data show that the industrial potential of the region is insufficiently used. Investing resources in marketing and development of the tourism industry in Serbia would create additional demand, which in turn would help improve the supply itself.

Tourism, more precisely industrial tourism in the Timok region, cannot and must not be viewed in isolation. Natural and social conditions form the basis of development, but also the basis for new ideas, redesigned old ones, in order to attract
the attention of tourists, especially potential tourists, in continuity.

Certain forms of education (mass or alternative) can significantly improve the "tourist awareness" in the Timok region, i.e. to change the opinion and behavior of the population into an active and positive attitude towards tourism, but also to enable a good division of labor when it comes to employment and success in that environment.

Contemporary society, including the Timok region, is exposed in educational terms to the effects of two opposing phenomena:

1. rapid development of science, especially informatics, which offer creativity, teamwork, communication, entrepreneurship, social engagement;
2. influence of the so-called mass cultures, time "killers", consciousness, senses and - truths.

These two global facts seek solutions both in practice (real production life) and in theory (improvement of environmental development factors). Tourism as a branch of the economy can greatly affect today's environmental crisis - poisoning of water, air, soil and food. It is present in Serbia, but also in the Timok region. The basic task of sustainable development is the protection of the environment, and tourism has a great role in this because it should improve awareness, will and solidarity with others, and not be an eliminator of existing resources (nature, energy). In that way, tourism, as well as industrial tourism as a part of it, would have a positive impact on sustainable development and survival of the environment. In the end, there is no developed tourism without a developed natural and social environment, and vice versa.

Culture, nature and ecology are just some of the things we need to pay special attention to in the future. Domestic tourism is becoming more and more important and developed, it is necessary to constantly introduce new ideas and redesign old ones, in order to attract the attention of tourists in continuity. Due to the great development of tourism in recent decades, we can say that various branches of tourism have gained importance, and among them is certainly industrial tourism. The history of industrial tourism is actually its future.

Valorization of industrial heritage in Eastern Serbia can stimulate regional identity, revitalize the area and create an additional tourist attraction. Such plans and later results from certain projects are very important for the state as well. In order to achieve all of the above, it is necessary to hire professional staff that would contribute to faster and better progress (historians, art historians, archaeologists, architects, economists, physicists, electrical engineers, tour operators, etc.). It is very important to involve schools and other organizations in the implementation of projects in order to inform the public and to encourage young people to think more about history. Established tourist tours will be an additional source of income for the population of this region in the future, will bring new employment to the local population, and will raise awareness of the importance of mining.

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ПОТЕНЦИЈАЛИ КУЛТУРНО-ИСТОРИЈСКОГ И ТУРИСТИЧКОГ НАСЛЕЂА ЗА РАЗВОЈ ТУРИЗМА У ТИМОЧКОМ РЕГИОНУ

Дејан Бугарин, Ђања Кремановић Величковић, Милош Туцовић

Извод

Последњих година у литератури се све више користи термин „индустријски туризам“. Он описује подручја која укључују индустријске споменике и напуштене зграде, а пре свега ретке објекте који су још увек у функцији. Индустријски туризам обухвата све погоне који се користе за прераду хране, прераду дрвета и текстилну индустрију, ту су и млинови, луке, рудници, аутомобилска и ваздухопловна индустрија, бродоградилишта итд. У оквиру докторске дисертације под називом „Потенцијали културно-историјског и економског наслеђа за развој индустријског туризма у Тимочкој крајини“4, проведено је истраживање које се бави све већим интересовањем за индустријски туризам у Источној Србији, тачније у Тимочкој крајини. Ова грана туризма више није сфера интересовања само одређених група експерата из области техничких наука, већ и обичних туриста заинтересованих за обилазак одређених региона. Циљ истраживања је да представе могућности за развој индустријског туризма у Тимочкој крајини, као и да добије податке о тренутном стању. Истраживање се заснива на искуственим информацијама туристичких радника, који су због природе посла интересовања релевантни за предложену тему. Испитани су учесници запослени у области туризма на различitim радним местима, као и студенти који се образују у области туризма. Подаци добијени током истраживања указују на то да испитаници верују да медiji недовољно информишу потенцијалне туристе о атракцијама индустријског туризма, потенцијалу туристичке понуде, али и о самом тимочком kraју, како локално, тако и шире, у Србији и иностранству. Такви подаци указују на могућност побољшања тренутног стања применом адекватне стратегије за промоцију и информисање потенцијалних корисника, као и на недовољно коришћење индустријског потенцијала самог региона. Улагање одређених ресурса у маркетинг и развој индустријског туризма створило би додатну потражњу, што би резултирали побољшањем туристичке понуде. Валоризација индустријског наслеђа у Источној Србији може да подстакне регионални идентитет, ревитализује подручје и створи додатне туристичке атракције. Планови и резултати одређених пројеката ове врсте веома су важни за регион, али и за државу.

Кључне речи: туризам, индустријски туризам, развој, Тимочки регион, Србија

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