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Cultural and natural heritage as a driver of sustainable landscape development

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Abstract. The Roman Limes - a former natural border of the Roman Empire has been recognized as a cultural landscape with exceptional universal values of international importance by UNESCO. In the Republic of Serbia, the Roman Limes encompasses the Danube river valley. Within this part of the Roman Limes, the Djerdap segment, which includes sites of different historical periods, stands out. However, most of the sites are underwater due to the construction of the Hydroelectric Power Plant. Physical inaccessibility to cultural heritage has led to insufficient presentation and promotion, but also a lack of information about its existence. Therefore, the main goals of this paper are to spread knowledge about the existence of the cultural and natural heritage of the Djerdap segment, as well as to identify the potential for their integration into contemporaneity. The results are presented through an urban-architectural project that is the sublimation of formed critical attitudes about the cultural heritage treatments. The expected results of the research include raising awareness of the importance of the cultural and natural heritage of the Djerdap segment through the promotion of cultural routes, as well as forming a potential model for their use in the process of establishing sustainable landscape development.

1. Introduction

Roman Limes represents the natural border of the former Roman Empire. It covers the space of three continents - Europe, Asia and Africa, in a length of over 5000km. It is a significant testimony of the existence and continuity of life on the Roman Limes, which is indicated by a large number of sites from different historical periods (prehistoric, ancient and medieval), but also with different functions. Although dominantly defensive functions, as indicated by a large number of defensive fortifications, watchtowers and legionary camps, the protection of Roman Limes from enemy attacks enabled the emergence of life, as indicated by the remains of settlements and necropolises [1].

1.1. Roman Limes in Europe - role and importance

Within the European continent, the Roman Limes includes area of large rivers, among which the Rhine and the Danube stand out. Following the banks of the rivers, numerous defensive fortifications were built. Because of it, the rivers have gained the importance of the first defensive shield of the Roman Empire against enemy attacks [1].

The importance of the Roman Limes, its protection, presentation and promotion is also indicated by the relevant international organization for the protection of cultural and natural heritage - UNESCO, which recognized the Roman Limes as a cultural landscape of exceptional universal values and under



whose auspices a transnational project for the protection, presentation and promotion of cultural heritage of the Roman Limes was launched - "Borders of the Roman Empire". One of the main goals of the project includes the improvement of the current state of the sites within the Roman Limes, their protection, presentation and promotion in a contemporary context in order to preserve the cultural and natural values. Numerous countries, in whose territories the remains of Roman Limes are located, have already inscribed the sites on the UNESCO World Heritage List [1, 2].

However, according to the Operational Guidelines for the Implementation of the World Heritage Convention, in order for localities to be inscribed on the UNESCO World Heritage List, they must be adequately protected, presented and promoted [3], as a result of which the Republic of Serbia, which also has localities within the Roman Limes, is still in the process of inscribing. From 2020, the localities belonging to the part of the Roman Limes that passes through the Republic of Serbia are on the UNESCO's Tentative List. To accelerate and successfully implement the process of inscribing the cultural and natural heritage of the Roman Limes in the territory of the Republic of Serbia on the UNESCO World Heritage List, it is necessary to study the cultural and natural heritage, but also to highlight the importance of their protection, presentation and promotion, as well as the potential of integrating the cultural and natural heritage into the modernity.

Therefore, this research work seeks to spread knowledge about the existence and importance of the cultural and natural heritage of the Roman Limes in the territory of the Republic of Serbia, with the aim of better protection, presentation and promotion of recognized cultural and natural values in the contemporary context, as well as opportunities for the establishment of sustainable cultural landscape development through the use of cultural and natural heritage. The Djerdap segment, which represents the part of the Roman Limes in the territory of the Republic of Serbia, due to the recognized cultural and natural values, as well as the fact that most of the sites are underwater and do not have an adequate protection, presentation and promotion, was chosen as a suitable testing ground within which the possibilities of applying modern principles of protection, presentation and promotion of cultural and natural heritage have been sublimated through the proposal of the cultural route and the project of the Archaeological Museum of Djerdap.

1.2. Roman Limes in Serbia

In the Republic of Serbia, the Roman Limes includes the course of the Danube River in a length of 588km, and it can be divided into three segments: the Pannonian, Moesian, and Djerdap [1, 4]. The positions of the segments are shown diagrammatically in Figure 1.

The Pannonian segment includes the area of Srem, Bačka and Banat, up to Belgrade, on which defensive fortifications and systems of military posts were built [4].

The Moesian segment covers the area between Belgrade and Golupac. The specificity of this area is represented by the broad valleys that made the Moesian segment easily accessible to enemies, as a result of which special attention was directed to the protection of this part of the border [4].

The Djerdap segment includes the area of the Djerdap Gorge in a length of 134km. Considering its geomorphological characteristics dominated by four gorges and four valleys that make up the composite river valley [4], this area represented one of the most challenging parts of the border of the Roman Empire, from the aspect of the organisation of defensive infrastructure and life on the Roman Limes. Within the Djerdap segment, smaller military fortifications were built inside the gorge, while settlements, larger fortifications and ports were built in the valleys [4].

1.3. Research of the Roman Limes - Djerdap segment

The first significant research of the Djerdap segment began in the 19th century and data on more than 80 different sites were published in numerous documents [4, 5]. A special problem of this segment is the fact that many localities are currently underwater, as a result of the commissioning of the Djerdap Hydroelectric Power Plant. The protective excavations that preceded the commissioning of the Djerdap Hydroelectric Power Plant, although very detailed, covered only part of the cultural heritage of the Roman Limes in the territory of the Republic of Serbia.

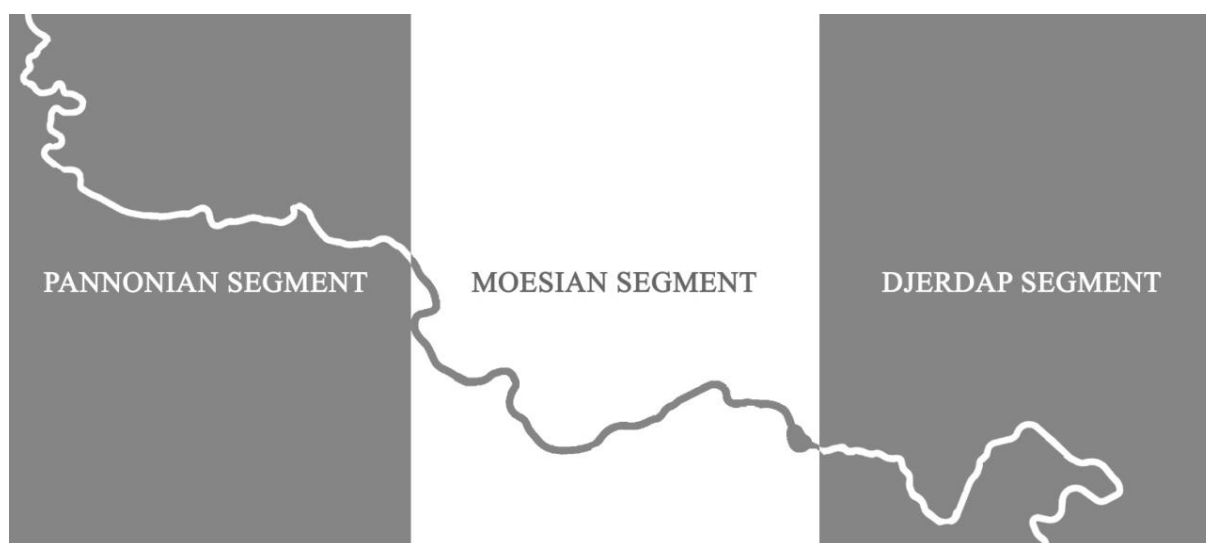


Figure 1. The Roman Limes in Serbia. (Author: Jelena Šćekić)

Due to the physical inaccessibility of a large number of sites of the Djerdap segment that are underwater, a significant part of the cultural heritage of the part of the Roman Limes became forgotten and consequently lost. Mapping, research, protection, presentation and promotion of localities within the Djerdap segment are a prerequisite for the inclusion of the cultural and natural heritage of the Roman Limes in the territory of the Republic of Serbia on the UNESCO World Heritage List. At the same time, the study of the localities of the Djerdap segment enables a better understanding of the history of the landscape, which is a precondition for the use of cultural and natural heritage in the process of achieving sustainable landscape development.

2. Theoretical Background:

Cultural and natural values of the Djerdap segment

The Djerdap segment includes the area of the Djerdap National Park, which indicates the exceptional importance of the natural values of the landscape of the Djerdap segment, within which there is a significant cultural heritage of the Roman Limes.

The localities of the Djerdap segment have layers from different historical periods (prehistoric, ancient and medieval), and represent defensive facilities, fortifications, legionary camps, watchtowers, settlements and necropolises. The most extensive research of this part of the Roman Limes, in the length of 109 km of the investigated area, were carried out in the second half of the 20th century, before the commissioning of the Djerdap Hydroelectric Power Plant [4].

However, the research covered only a part of the cultural heritage, as a result of which more extensive data that go beyond information about the location of the site, historical period and its function, are missing for a large number of sites. Nevertheless, mapping and systematization of existing data on sites within the Djerdap segment are considered significant, both for improving knowledge about the existence and importance of the cultural heritage of the Djerdap segment and for forming a database for future research.

2.1. Mapping of sites - prehistoric, ancient and medieval period

The process of mapping the cultural heritage of the Djerdap segment has included the systematization of data on sites from the periods of prehistory, antiquity and medieval period.

Among the sites from the prehistoric period, the prehistoric settlements of Lepenski Vir and Rudna Glava, which have the status of cultural assets of exceptional importance for the Republic of Serbia, are particularly noteworthy [6, 7, 8].

The largest numbers of sites of the Djerdap segment have layers from the ancient period. Functionally, the sites represent the remains of Roman fortifications, castrum and burgs, around which settlements were built. The sites of Castrum Pontes, Diana, and Trajan's Table are representing the cultural assets of exceptional importance for the Republic of Serbia, while the Timacum Minus has the status of a cultural asset of great importance [6, 7, 8].

Among the localities which have medieval remains, the most important are medieval fortifications, settlements and necropolises, within which the Golubac fortress stands out - a cultural asset of exceptional importance for the Republic of Serbia [6, 8].

3. Methodology:

New approaches to protection, presentation and promotion of cultural and natural heritage

The lack of attention to the study of the cultural heritage of the Djerdap segment has led to insufficient information among the wider population about its existence, as a result of which a large part of the cultural heritage of the Djerdap segment is currently forgotten. Consequently, the study of the principles of protection, presentation and promotion of cultural and natural heritage in the contemporary context is a precondition for the preservation of the cultural and natural heritage of the Djerdap segment, as well as the possibility for their use into the process of achieving sustainable landscape development. Therefore, the methodology applied within this research work includes the analysis of relevant international documents within which the principles of protection, presentation and promotion of cultural and natural heritage are defined, but also the analysis of case studies within which the defined principles are applied in situ, adapted to the specific context and contemporaneity.

3.1. International organisations - role and significance

To adequately approach the process of protection, presentation and promotion of cultural and natural heritage, it is necessary to understand their meaning and importance, as well as the principles that should be applied during their protection, presentation and promotion. Of particular importance are international documents adopted by relevant international organizations dealing with the treatment of cultural and natural heritage, among which UNESCO, The Council of Europe, ICOMOS, ICCROM, and Europa Nostra stand out [9]. Within these documents, the notions of cultural and natural heritage are defined, as well as the principles of their protection, presentation and promotion, which represent the starting point for dealing with cultural and natural heritage in the contemporary context.

3.1.1. *The European Landscape Convention*

The European Landscape Convention, which defines the concept and importance of cultural landscape and its protection [10], made it possible to see the cultural and natural values of a landscape as one spatial, but also a symbolic unity. The importance of viewing the landscape as an essential component of the human environment is emphasized, as well as the integration of the landscape into spatial (regional) and urban planning policies [10, 11]. Also, within the framework of the Convention, the need of raising awareness of society, private organizations and relevant experts about the values of the landscape is particularly emphasized [10, 11].

In the context of the Djerdap segment, in which a large number of localities are underwater, the treatment of the Djerdap segment as a cultural landscape would contribute, both to the promotion of existing cultural and natural values and the spreading of knowledge about their existence. At the same time, that would be an opportunity for the integration of stakeholders and the local population in the processes of protection, presentation and promotion of the Djerdap segment as a cultural landscape, which would contribute to the establishment of sustainable landscape development.

3.1.2. *International Cultural Tourism Charter*

The International Cultural Tourism Charter [12], in addition to emphasizing the diversity and importance of cultural and natural heritage, points to the importance of adequate management of cultural and natural heritage, which is an obligation of the local community and the institutions of the

state where cultural and natural values are located. Tourism is seen as a potential for the presentation and promotion of existing cultural and natural values, as well as a great economic potential. The importance of including the local community in the planning processes of cultural and natural heritage management and tourism landscape development is particularly emphasized.

Bearing in mind the cultural and natural values of the Djerdap segment, there is a distinct potential for the presentation and promotion of the cultural and natural heritage through cultural tourism, which would have a positive effect on its economic development, the improvement of the quality of life of the local population and the establishment of sustainable landscape development.

3.1.3. *The Charter on Cultural Routes*

Thanks to the Charter on Cultural Routes which defined the concept and importance of cultural routes [13], a new principle of protection, presentation and promotion of cultural and natural heritage has been introduced through the promotion of cultural routes as recognized significant historical directions of movement, but also symbolic bonds between different peoples, their cultures and traditions.

In the context of the Djerdap segment, the possibility of applying the concept of cultural routes can be seen as the highlighter of the cultural and historical significance of the former border of the Roman Empire and the Roman road. The revival of a historically significant direction of movement through the promotion of the Roman road as "the road of the Roman emperors", consequently would contribute to the spreading of knowledge about the existence of the cultural and natural heritage of the Djerdap segment and the promotion of their importance, but also economic development and the establishment of sustainable landscape development.

3.2. Application of the principles of protection, presentation and promotion of cultural and natural heritage in the contemporary context

International documents represent an important starting point for understanding cultural and natural heritage and the principles that should be applied in the processes of their protection, presentation and promotion.

On the other hand, the study of case studies in which the principles defined in relevant international documents were applied in situ while adapting to the characteristics of the contemporary context in which the cultural and natural heritage are located, is very important from the aspect of understanding the possibility of applying guidelines for the treatment of cultural and natural heritage, defined within documents, in the real environment.

Improving the state of the cultural and natural values of the landscape is possible through the promotion of cultural routes that combine the observed values into one unit, as evidenced by the example of cultural routes on the island of Chios in Greece [14]. The methodology applied to the case study of two cultural routes included the analysis of the current state of cultural routes in situ, the analysis of previous research, proposals for protection and promotion, with the use of GIS data and the identification of opportunities for the introduction of new complementary tourist content that would contribute to the improvement of quality life of the local population. This case study indicates the potential of an integrated approach to the organization and management of cultural routes, in order to establish sustainable landscape development (Figure 2a).

On the other hand, within the case study of the Indian city of Indore [15], the importance of including the local population, educational institutions and stakeholders in the process of protection, presentation and promotion of cultural and natural heritage is emphasized. The importance of social cohesion, which is established as a consequence of the integration of the local population into the process, is particularly emphasized, which consequently leads to a greater sense of responsibility of the local population towards the cultural and natural values of the landscape. Also, the inclusion of the local community in the process of protection, presentation, and promotion of cultural and natural heritage, enables a better understanding of the importance of cultural and natural values, which affects their more successful presentation and promotion.



Figure 2a. Landscape of the Chios Island. Figure 2b. The Acropolis Museum.

However, for the cultural and natural values of the landscape to survive in an increasingly demanding contemporary context, they must be integrated into the modern way of living and seen as an integral part of it. In this regard, the value of the Acropolis Museum in Athens [16] is highlighted, as an example of a successful dialogue between cultural and natural values, on the one hand, and contemporary architectural expression, on the other (Figure 2b).

4. Results: Cultural and natural heritage as a driver of sustainable landscape development

Within an area such as the Djerdap segment, the preservation of cultural and historical layers that have created the identity of the cultural and natural heritage over time and influenced their current state is an imperative in the process of protection, presentation and promotion of cultural and natural heritage in the contemporary context [17].

The research of the part of the Roman Limes in the territory of the Republic of Serbia with main focus on the Djerdap segment raised numerous research questions that relate to the possibilities of coexistence of natural, cultural and contemporary values in space.



Figure 3. Proposal of cultural route through the Djerdap Gorge. (Author: Jelena Šćekić)

Formed attitudes are sublimated in the project of the Archaeological Museum of the Djerdap Gorge, which represents a testing ground for examining the relationship between natural and cultural values on the one side, and contemporary architectural expression, on the other. Having in mind the natural values of the Djerdap National Park, as well as the significant cultural heritage which is dominantly underwater, a cultural route with spatial markers (memorial points) along the Danube River has been given. It would be promoting cultural and natural values of the landscape, but also reviving a significant Roman road (Figure 3).

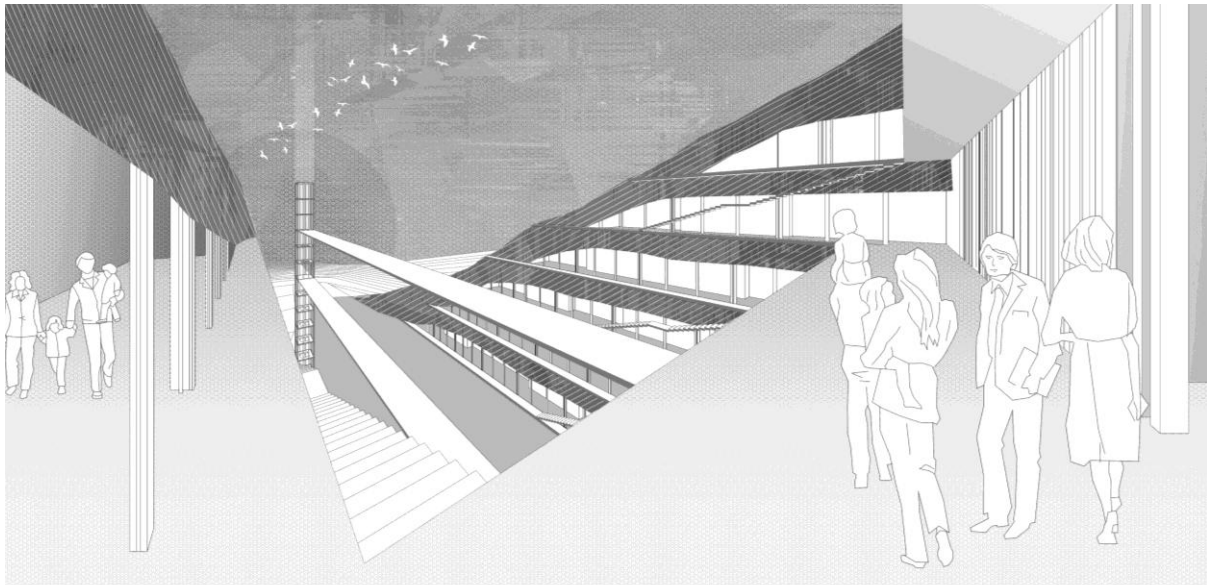


Figure 4. Proposal of the Archaeological Museum of the Djerdap Gorge. (Author: Jelena Ščekić)

On the other hand, the Archaeological Museum, which combines the observed cultural and natural values into one spatial and program unit, is located on a 300m high cliff, in a demanding natural environment, to examine the possibility of coexistence of contemporary architecture and values of the landscape, while preserving their identity (Figure 4).

5. Conclusion

The study of the Djerdap segment made it possible to observe the distinct cultural and natural values of the area of the Djerdap Gorge, as a result of which the protection, presentation and promotion of recognized cultural and natural values should be treated through a holistic approach of the protection, presentation and promotion of cultural landscape. On the other hand, the physical inaccessibility of sites which are underwater limits the possibilities for the presentation and promotion of the cultural heritage, as a result of which the significance of promoting the memorial importance of cultural heritage is highlighted. The formation of cultural route along the course of the Danube River, with memorial points (spatial markers) of informative and exhibition character, would contribute to the spread of knowledge about the existence and importance of the cultural and natural values of the Djerdap segment, as well as the revival of the Roman road as an important historical direction of movement, but also the symbolic bond between different cultures and peoples through time. Also, the holistic treatment of the cultural and natural values of the Djerdap segment through the protection, presentation and promotion of the cultural route and the cultural landscape, represents an opportunity for the inclusion of the local population, stakeholders, institutions and experts in the process itself, which is a prerequisite for improving the quality of life and establishing the sustainable landscape development. In that context, the use of cultural and natural values of the Djerdap segment as a model for establishing the sustainable landscape development, contributes to the perception of cultural and natural heritage as a driver of sustainable landscape development.

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