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DIGITIZATION OF FOLK AND PUBLIC ARCHITECTURE IN THE MUNICIPALITY OF CRNA TRAVA

Abstract. The general trend of rural-urban migration of population and the resulting socio-economic consequences have influenced that many villages in Serbia remained with a small number, mostly elderly inhabitants. One of the most endangered municipalities, regarding population and negative growth of inhabitants, is the municipality of Crna Trava. This paper presents the results of the project "Forgotten Serbia - the last years of villages in the municipality of Crna Trava". The aim of the project was to explore, take and permanently archive images of private and public buildings, rural surroundings, etc. of villages of the municipality of Crna Trava. The second part of the project was to categorize and describe the digitalized objects, publish webpages about the villages and measure responses and reactions of web users.

Key words. abandoned villages, folk architecture, digitization, cultural heritage.

1. Introduction

The territory of the municipality of Crna Trava is located in the southeast of Serbia, by the border of Bulgaria. Villages in Crna Trava were founded on hilly and mountainous terrain (from 400 to 1500 MSL). Due to terrain configuration, the villages are of a scattered type, organized in hamlets. Traditionally and most often, a hamlet is founded by one family on their own property. In some cases, it is difficult to determine where the hamlet belongs to. Possible criteria is a school, or some other public facilities in the village that inhabitants use and gravitate to.

The continuous emigration of the population from Crna Trava has begun at the beginning of the 20th century. During the first years men went to practice temporary, masonry jobs in other parts of Serbia, mostly in Belgrade. They used to spend one summer month (to mow meadows) and winter time in their villages. The stone-cutting and masonry school was founded in Crna Trava in 1919, immediately after the end of the World War I. So, previous self-taught masons were replaced by educated stonemasons and masons, who worked on the construction of prestigious buildings in Belgrade, the tallest factory chimneys in Yugoslavia, etc.

The permanent abandonment of the villages of Crna Trava has begun in the late 1950s. Then already respected and widely known masons "Crnotravci", moved their families in new places to live, built new houses, and the number of inhabitants in the villages of Crna Trava has begun continuously to decrease. According to the 2011 Census, out of a total of 25 villages, 21 villages had less than 100 [1], mostly elderly inhabitants. Finally, in 2018 not a single child was born in the municipality. According to the latest estimates of the officials of the Municipality of Crna Trava (2019), the number of villages with 10 or less inhabitants and the number of abandoned villages was 11. It means that during the last 10 years the number of inhabitants has decreased by 25%. The direct consequences of emigration are abandoned properties, endangered private and public buildings.

Our project, named "Forgotten Serbia - the last years of villages in the municipality of Crna Trava" (<http://www.srbijaplus.net/crna-trava-putopisi.htm>) had several goals. The priority was to visit the villages at the municipality of Crna Trava, identify and take images of endangered public and private buildings and to permanently preserve and archive them in a digital format. We semantically tagged images by geographic coordinates, thematic categories, and descriptions of the objects. Regardless of the attractiveness and cultural value of the buildings, the images authentically illustrate various aspects of the century-old history of the area: urban planning of the village, techniques of folk buildings, the social structure of the population, public life, etc. We have published reportages about the villages at several web portals and Facebook. The intention was to present the folk and public architecture of the area, to point out the consequences of emigrations, but also to present the villages and surroundings of exceptional values and promote them to web users in a popular way.

2. Traveling from village to village

Our visits took place in the period July - August 2019. Team members visited all villages in the municipality of Crna Trava (31 villages and hamlets), has recorded GPS routes, and took more than 4,700 images, associated with comments and impressions. Figure 1 presents the composite GPS tracks and viewpoints of our routes, as a separate layer on the Google Maps satellite view.

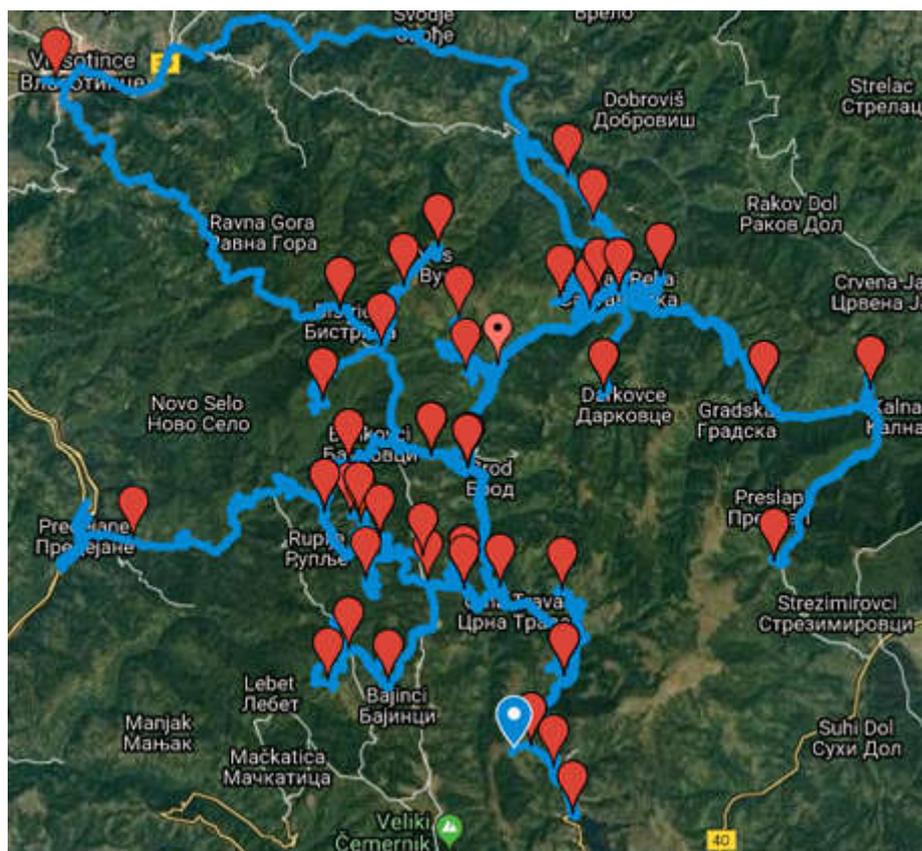


Figure 1. GPS tracks and viewpoints, recorded on ways to villages of Crna Trava (<http://www.srbijaplus.net/crna-trava-putopisi.htm>)

Traveling from village to village, we passed approximately 600km of hilly-mountainous area. The altitude range was 304-1,573 MSL. Usually, to villages and

hamlets lead mountain, forest and rural roads. Rarely there is a macadam, more often those are earthen roads, hardly damaged and overgrown by mountain vegetation (Figure 2). Those roads are difficult to pass in summer, in wintertime they are impassable.



Village road to Ostrozub (no inhabitants)



Village road to Obradovce (a few inhabitants)

Figure 2 Examples of village roads

3. Field research and observations

The research and imaging included several dominant architecture categories:

- Folk architecture (houses, agricultural buildings, courtyards, village fountains)
- Public buildings (schools, cultural centres, administrative offices, religious architecture)
- Memorials (memorial tables, monuments, memorial parks, memorial fountains)

3.1. Folk architecture. The architecture of the old village houses in the area of Crna Trava is mostly simple, without a recognizable and differentiated style. There are no attractive architectural elements of old houses in Eastern Serbia, such as the porch or veranda (Figure 3). Houses with the porch were most often built before the World War I and they were located in the areas of Dimitrovgrad, Knjaževac, Zaječar, Negotin, etc.



House in Jalovik Izvor, Knjaževac (2012)



House in Petačinci, Dimitrovgrad (2011)

Figure 3. Village houses with the porch

Despite the fact that Crna Trava shares the same area with the mentioned municipalities, in her villages there are no houses with porches, as expected. Although many men from Crna Trava were educated and experienced masons, they usually built simple, modest family houses. One of the possible reasons is a short stay in their own villages. Sometimes they used to spend only one summer month and a part of the mountain winter in the village, when there were not building conditions. The Figure 4 shows typical examples of houses, built in villages of Crna Trava.



House in Mlačišće (2019)



House in Rajčetine (2019)

Figure 4. Modest folk architecture

While building their houses, foundations used to be of stone and walls of wood, mud and chaff (Figure 5). The built-in materials and construction techniques have provided a stable internal temperature throughout the year, as well as the elasticity of buildings. Thus, some of those houses are over a hundred years old and damages are not significantly noticeable.



Figure 5. Repairing an old village house in Balta Berilovac, Knjaževac (2012)

Unlike simple village houses, richer families built, for those days, modern and attractive houses in a spa style. The Figure 6 shows the examples of such houses in Obradovce.



House in Obradovce (2019)



House in Obradovce (2019)

Figure 6. Houses in a spa style

3.2. Public buildings. The most common and important public buildings are schools and cultural centres. Recent decades, there were no children in villages, so most of schools have been closed and abandoned. Today, they are endangered by mountain winters and their physical existence is uncertain. The Figure 7 shows the examples of school buildings.



School in Peslap (2019)



School in Dobro Polje (2019)

Figure 7. School buildings

In the former Yugoslavia, after the World War II, a project of intensive building about 1,500 village cultural centres was launched. [2] They were used for literacy and education, and also, they were a part of the ideological, cultural and social life of the village inhabitants. Due to the declining population, cultural centres have been closed, buildings are most often abandoned and their existence is uncertain. The Figure 8 shows examples of cultural centres.



Cultural centre in Kalna (2019)



Cultural centre in Dobro Polje (2019)

Figure 8. Cultural centres

Despite the current state of the buildings of cultural centres and possible ideological connotations, activities and work of cultural centres have given a great contribution to the overall rise of the post-war Serbia.

3.3. Memorial objects. A large number of inhabitants from the villages of Eastern Serbia, including the municipality of Crna Trava, were victims of the Balkan Wars, the First and Second World Wars. Remembering their relatives and neighbours, the people of villages in Crna Trava erected monuments, memorial fountains and posted memorial tables. Usually, monuments are located in the centres of villages. Some of them are in Kalna (Figure 9), Ruplje, Dobropoljsko Polje (Figure 9), etc. At the same time they are equally committed to Serbian soldiers of the World War I, civil victims of the World War II and to partisans. Among others, such an obelisk has been erected in Dećeve. It is dedicated to victims of the concentration camp Dećeve, founded by Bulgarian Army during the World War II.



Memorial park in Kalna (2019)



Monument at Dobropoljsko polje (2019)

Figure 9. Memorial objects

Memorial tables are especially important because they contain complete lists of civilians and partisans, killed by Bulgarian Army during the World War II. They exist in every village of Crna Trava. Memorial tables have been placed on the walls of public buildings. By devastation of those buildings, the memorial tables will be permanently destroyed. The Figure 10 shows examples of memorial tables.



Memorial table in the hamlet of Popovi (2019)



Memorial table in Pavličine (2019)

Figure 10. Memorial tables

In relation to the others, the memorial table in the hamlet of Popovi stands out. The tragic fate of the war did not pass by the family of Milentije Popović, the former president of the Federal Assembly of Yugoslavia. The table is dedicated to his brother Milivoje Popović, who was killed during the mass escape of detainees from the

Jasenovac concentration camp [3], which took place on April 22, 1945. He was 21 and the war in his native Popovi was long over.

4. Digitization and publishing

Image digitization included:

- Technical post-processing
- Semantic annotation, including geographical coordinates
- Archiving RAW and JPEG copies of images, etc.

For the purpose of semantic annotation of images, we used thematically applicable vocabularies, such as Schema.org [4], Getty dictionary [5] and other open dictionaries (Link Open Data - LOD).

Documentary reportages about visited villages and hamlets we have published at the web portal of Magazine for national geography, culture and tradition - Serbia plus (<http://www.srbijaplus.net>), Cultural Heritage Browser web portal (<https://www.kultura.rs>) and at several pages of Facebook groups.

4.1. Webpages at the Serbia plus web portal. Webpages and images, published at web portal Srbija plus, are completely semantically annotated. To do that, we used Schema.org [3] and other relevant LOD dictionaries [4]. Also, we included Open Graph metatags (og), to control the content of our webpages that search engines and social networks will take over.

4.2. Publishing images at Cultural Heritage Browser. We have published the selection of illustrative images at (Serbian) Cultural Heritage Browser web portal (Figure 11). Those images are semantically tagged, including: title, place, description, categories, geographic coordinates, authors, etc.

Početna Napredna pretraga Mapa kulture Srbije Vremenska linija kulture Republike Srbije O projektu

Stara kuća u selu Krstićevo

Izvor: Projekti u oblasti digitalizacije kulturnog nasleđa

Ustanova: Magazin za nacionalnu geografiju, kulturu i tradiciju

Zbirka: Krstićevo, Crna Trava

Autor: fotografija i meta podaci: Zoran Cvetković

Vrsta građe: fotografija

Opis: Stara kuća s početka XX veka u selu Krstićevo, u opštini Crblatom i plevom).

Mesto nastanka: selo Krstićevo, opština Crna Trava

Datum nastanka: 2019-08-26

Lokacija originala: kontakt: Zoran Cvetković, info@srbijaplus.net

Vlasnik: Zoran Cvetković

Fizički opis: formati fotografije: raw, jpeg

Period pokrivanja: XX vek -

Naziv kolekcije: Fotografije sela Krstićevo, Crna Trava

Figure 11. A published object - the image of an old house in Krstićevo (<https://kultura.rs/objekat/3261521-stara-kuca-u-selu-kr>) [Accessed: 31-May-2020]

5. Results of publishing

The measure of publishing results includes ranks of webpages at Google and reactions of Facebook's users, regarding the shared travel reportages.

5.1. Results of Google search. To estimate the visibility of published reportages on the web we used positions in Google's list of search results, while searching by villages' names (Figure 12).

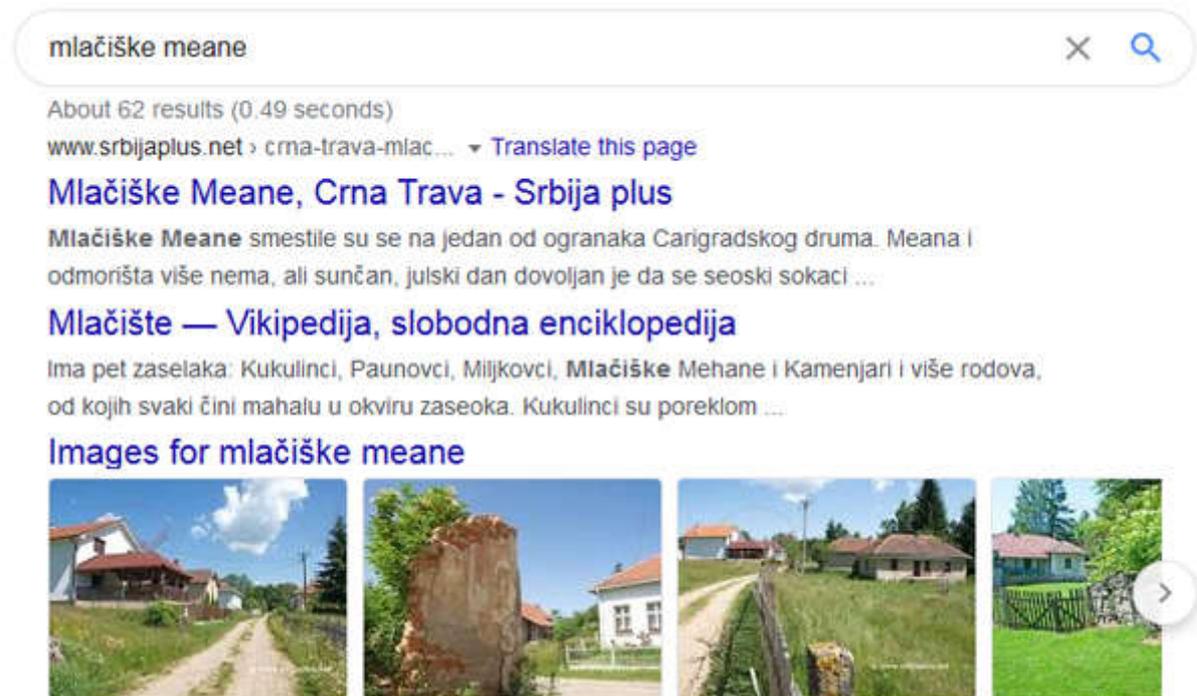


Figure 12. Results of a Google search by the keyword Mlačiške Meane [Accessed: 31-May-2020]

The webpage of Mlačiške Meane (<http://www.srbijaplus.net/crna-trava-mlaciske-meane.htm>) is the first on the resulting list. Besides the link, Google has added description and several images from the webpage.

5.2. Response of Facebook's users. Measurements responses of Facebook's users have included:

- Sharing a webpage from Srbija plus web portal to several Facebook groups
- Tracking the number of visits to the shared webpage, using Google Analytics Tool
- Analysing comments of group members.

After sharing a webpage to Facebook, the main criterion for a successful response is if a Facebook user visits the shared webpage. We do not consider emoticons (likes, etc.) as a successful response. Usually, we shared one webpage a week.

Based on Google Analytics data, Figure 13 shows daily numbers of visits to the Serbia plus web portal during the period of September 10 to December 31, 2019. The total number of visits was 13,426.

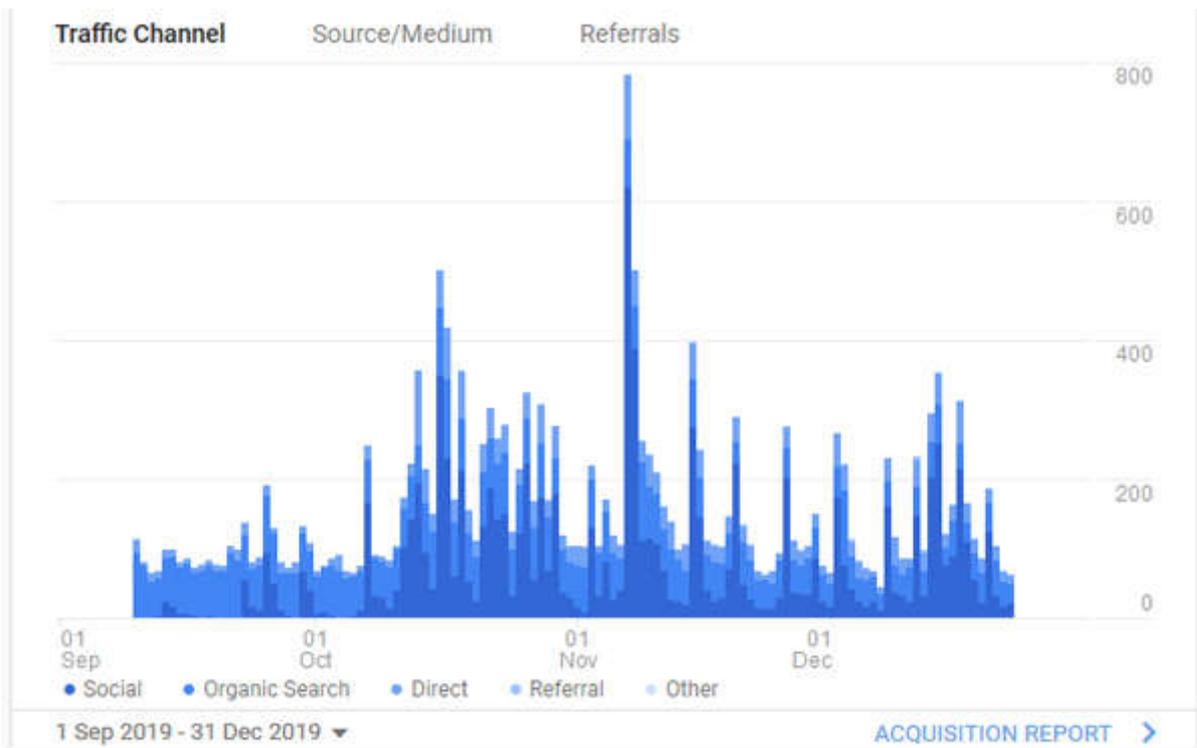


Figure 13. Numbers of visits to the Serbia plus during the period September 10 to December 31, 2019

The diagram from the Figure 10 shows the following regularities:

- After each share on the Facebook groups' pages, there was a high daily increase of visits to the Serbia plus web portal. The extreme day was November 23, 2019, after sharing the webpage of the village Preslap (<http://www.srbijaplus.net/crna-trava-preslap.htm>). Almost 800 visits were recorded.
- After the first day of sharing, the number of visits decreases and the effect of spreading the infection disappears.

6. Conclusion

The project "Forgotten Serbia - the last years of villages in the municipality of Crna Trava" had two main goals. The priority was to take, as much as possible images of private and public buildings, primarily those that were endangered. After the technical post-production and semantic annotation, images has been permanently archived. Finally, we has published reportages about visited villages at the Serbia plus web portal. The aim of publishing was to document general threats to survival of the villages and inhabitants in the municipality of Crna Trava. At the same time, reportages have to highlight beautiful, but forgotten areas of Serbia.

During our visits to villages of the municipality of Crna Trava, we often faced to and took images of hundred-year-old private buildings. The images document examples of folk architecture and specific construction techniques. Most of houses are modest and were built of earthen charge. However, there are beautiful, representative buildings. An example is the house of the Nikolic family, built in 1905 in the village of Brod. The architectural project included elements of the secession that was popular all over the world in that time. We met several valuable houses in the village of Obradovce, which form an ambient entirety. The school in the village of Preslap stands out for its beauty,

as well as the ambient entirety in the centre of the village of Dobro Polje that includes the local administrative office, the house of culture and the school.

Numerous memorial objects are especially significant. During the 20th century every war passed throughout the villages and hamlets of Crna Trava. A significant number of inhabitants were killed. Remembering relatives, neighbours and friends, the inhabitants of villages have erected memorials, memorial fountains and monuments. Without ideological connotations, the most of them have been raised in the period of the fifties and sixties of the XX century. Memorial tables keep the names of the victims of the Balkan Wars, the First and Second World Wars. Examples of larger monuments are obelisks on Dobropoljsko polje and in Deceva nearby the village of Brod. The memorial park was erected in the village of Kalna.

Finally, our digitized and published materials have lasting value and could be used as illustrative sources while writing the centennial history of this area.

Announcement

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