

The Vukotici Village on the Krivaja River: Life in a Way of Sustainability

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Abstract— Kriva Rijeka is the name for a group of villages in the municipality of Olovo located in the Krivaja river valley along its course from the canyon Krsevi, geographical coordinates: 44°07'54.13"N, 18°33'22.36"E, to the locality Kamenica, geographical coordinates: 44°13'09.65"N, 18°29'33.17"E, below the Cunista village. The term „Krija Rijeka“ is in unofficial use today, and it appears in documents for the name of the cadastral municipality. The Vukotici village is one of the largest villages in the Kriva Rijeka area, and by its geographical-political position, resources and history (mentioned in the Ottoman Defter from 1604) is an example of people's lives in continuity, and is a good example of sustainability. The main resources of the Vukotici village are: geographical position (along the road Olovo-Zavidovici), Krivaja river, spacious ports along the Krivaja river, abundant stream, sources of drinking water, gardens and orchards within the narrower physical structure of the village, fields and meadows in many wide area of the village, vast meadows and pastures of that forest.

Keywords— Krivaja, Kriva Rijeka, The Vukotici village, sustainability, water, fields, orchards, forest.

I. INTRODUCTION

The Vukotici village (Geographical coordinates: 44°12'24.03"N, 18°31'03.99"E, elevation 571 m) is located on the right bank of the Krivaja River, near the end of Kriva Rijeka in the Olovo-Zavidovici direction (Figures 1, 2, 3). The village is situated at the foot of the Smolin mountain, i.e. its peaks Suva vlaka and Visoko. The village is 4.8 km from Solun on the Krivaja River, and 10.30 km from Olovo (by air). The area of the village is bordered on its western and southern sides by the Krivaja River, on the eastern side by the area of the Milankovici village, and on the northern side by the slopes of Mount Smolin.

According to the 2013 census, 251 people ^[1] lived in Vukotici, which is significantly less than the number of inhabitants (371), according to the 1991 census ^[2].



Figure 1. The Vukotici village. Location

Left: https://upload.wikimedia.org/wikipedia/commons/8/88/Bosnia_and_Herzegovina_in_Europe.svg, Accessed 11.24.2022
 Right: Google Earth, Accessed 11.24.2022.



Figure 2. View of the ('old') Vukotici village from the locality Brdo (left) and view of the Vukotici village from the southeast (Author on the Oglavic hill above the Vukotici village), right
 Source: Author (5.19.2020.), left
 Source: Uzeir Kamenjasevic (2.17.2016.), right



Figure 3. View of the Vukotici village from the 'stajbok' above the village (in the background is the Cunista village and the peaks of the Zvijezda mountain) Source: Author (5.19.2020.)

II. ENVIRONMENT

By 'environment' we mean any possibility in Space in which man can realize his existence [3].

1.1. Natural environment

By 'natural environment' we mean all those features provided by nature, on which man (mostly) has not achieved his influence: geographical location, geomorphology, watercourses and water reservoirs, flora and fauna, available soil, climate [3].

The most important resources of the Vukotici village are:

- Geographical and traffic position (Krivaja river valley) which enables it to be efficiently connected with settlements in the Krivaja river valley, from Olovo to Zavidovici, and from here further into the world. Once (1901-1972) the communication was a narrow-gauge railway, and later (1972-present) the Olovo-Zavidovici regional road.
- The village is supplied with sources of high-quality drinking water. Some springs are located in the village itself, and others are in its vicinity. The spring water is of high quality and healthy, since the springs are located in the 'black stone' and the black pine forest (Figures 4,5,6).
- Integration into the natural environment. The village is located on a gentle slope with southern exposure, while it is protected from the north by the peaks of the Smolin mountain, which rise very steeply above the village (Figures 1,2). Due to this position in the natural environment, the Vukotici village can be compared with the best examples in the world (Mesa Verde in Colorado (USA), the architecture of the Dogon people along the Bandiagara cliff in the Mali state).
- The constant and water-rich Vukoticki stream (created by the confluence of Veliki and Zahaluski streams above the village) flows along the southern edge of the physical structure of the village and flows into Krivaja (Figure 18). Watermills where grain was ground were built on the stream, once part of the house yard. This was such a convenience that an individual could bring grain to the mill and carry flour 'on his shoulder'.
- Along the Krivaja River, at a high enough elevation to allow for flooding, there are fertile fields and meadows with predominantly southern exposure (Figures 1,8). At

the same time, the fields on the northern side are protected by high cliffs of limestone rocks (Vinsko brdo, Sikirica and Porjedace).

- A particularly pleasant microclimate, favoring the cultivation of fruits and vegetables (Figure 7). In Vukotici (and Cunista), cherries ('aslame'), apples and pears ripen the earliest in Kriva Rijeka. Vukotici is known for its early scented apples - 'petrovace'.

According to the place and method of locating in the geographical space, the available natural resources and the way people use them, the Vukotici village can be studied as an extremely representative example of bioclimatic urbanism (that is, ruralism) and bioclimatic architecture [6]. It is located on a gentle slope with southern exposure, while it is limited to the north by the high Smolin mountain range. Vukoticki stream flows along the southern edge of the village, sometimes through the courtyards of the houses. Its hydropower has been used by the residents of Vukotici since the beginning of the village, and the stream refreshes the village both in terms of microclimate and sound. There are several sources of drinking water in the village itself. Many springs are located in the fields and meadows around the village.



Figure 4. Krivaja River Source: Author (5.19.2020.)



Figure 5. Vukoticki stream Source: Author (5.19.2020.)



Public fountain along the road from the Vukotici village towards Podvini (fields and meadows)



Public fountain in Vukotici (right next to the Vukotici stream, above the village)

Figure 6. Public fountains

Source: Author (5.19.2020.)



Linden tree 'with fruit tree treatment' in the courtyards of houses in the Vukotici village



Apiary in the orchard and in the forest in the Vukotici village



Orchard by the Vukoticki stream (right next to the Kamenjasevic family houses)



Vines in the orchard of a household in the Vukotici village
Figure 7. Gardens and orchards in the immediate vicinity of houses
Source: Author (5.19.2020.)

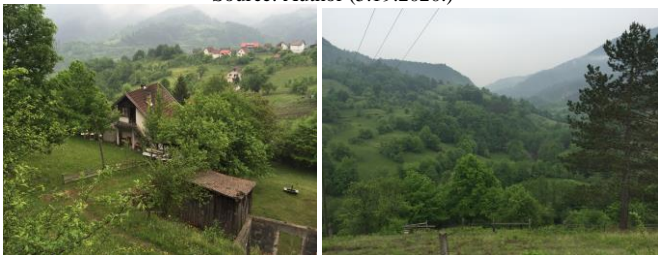
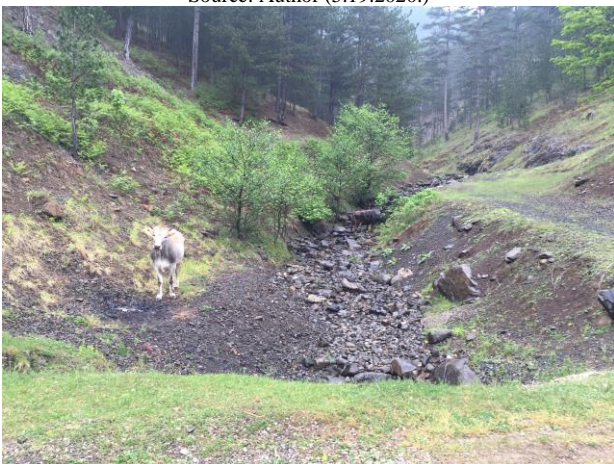


Figure 8. Fields and meadows in the Vukotici village
Source: Author (5.19.2020.)



The forest is like a pasture above the Vukotici village
Figure 9. Pastures in the Vukotici village
Source: Author (5.19.2020.)

1.2. Social environment

The social environment represents everything that man has created and that separates him from the world of other living beings [3]. It includes both physical structures (various

material, more or less ordered products of their activity) and the immaterial world that we know through intellect (science, philosophy, religion, law, morality) through an ordered system of abstract symbols (letter, signs) [3,4,5,6,7,8,9,10].



Quarry and black pine forest in the Vukotici village
Figure 10. Resources of natural building materials
Source: Author (5.19.2020.)

According to the Comprehensive List of the Bosna Sandzak from 1604 [10], the Vukotici village is mentioned under the name Vukovici (p. 250) as part of Olovo nahija, where a detailed overview of its inhabitants, their income and tax obligations is given¹. Today, several families live in the Vukotici village: Kamenjasevic, Hodzic and Krekic.

III. MAN

The term 'man' is a huge question whose essence he himself tries to decipher within his own limits, within the limits of the Earth and the limits of the Universe [2]. Together with the rest of the living world, it participates in the process of circulating matter and energy in nature, sharing with it the same destiny, giving birth and dying against its will. Being endowed with reason, will and feelings, he is, the only one in the living world, able to discover the given laws of the

¹ 89. The Vukovici village, belongs to Olovo:

The heritage of Vukosava, in the possession of Alagoz Jusufov, now in the possession of Korkud Alagozov and other co-owners; The inheritance of Ilijas Vladonji, in the possession of Arslan, son of Mustafa; Kurd, Alagoza - on his father's heritage; The inheritance of Hasan, son of Pirija, in the possession of Ahmed-Celebija and other co-owners; The land of Ilijas, Ferhad-caush's brother, he enjoys a fifth part, and the rest belongs to Bakhtijar Ihtijar-age and other co-owners, in the possession of Arslan Mustafa - a pair; Heritage of Nesuh Milutin, owned by Ferhad Hasan; Heritage of Dobromir, owned by the villagers; Baština Štipana - deserted; Heritage of Radin, in the possession of Akindija Mahmud; Heritage of Radonje - deserted; Chifluk of Ahmed, son of Omer, the land that he enjoyed before, in the possession of Ferhad Huseyn, now in the possession of his son Suleiman;
Muslims with heritage 9, deserted heritage 2;
Income:
resmi cift i bennak 198
wheat, measure 5, amount 110
mixed race, size 15, amount 195
oats, kajla 15, amount 105
ushur from vegetables, flax, hay, beehives, white and red onions 20
half of badihava, young land, poljačina and land deed fees 28
Total: 650

structure of nature. Vukotici is the village that (along with the Cunista village) 'gave' the first graduate engineers and the first teachers in Kriva Rijeka². From the Second World War until today, generations of young people have been graduating from colleges, higher and secondary schools³, and various types of secondary vocational schools. The village is known for its great craftsmen (carpenters), not only in the area of Bosnia and Herzegovina, the former SFRY, but also around the world, since, working in the companies „Vranica“, „Hidrogradnja“, „Bosna“ and „Unioninvest“, for example, they worked in Iraq, Libya, Russia, Germany.

IV. BOUNDARIES: ARCHITECTURE AS A FRAMEWORK OF LIFE

The building tradition is one of the most recognizable features of the village. There, during the time of the Kingdom of Yugoslavia (and earlier) there was a working group of famous craftsmen ('*dunjeri*') who built houses, barns and auxiliary buildings, both in Kriva Rijeka and in the Kamensko settlements, Careva Cuprija, Jelaske (...), downstream Krivaja, as well as in the Ligatici, Mizunovici, Dastansko villages (...) in the Vares municipality⁴.

In the past, the Vukotici village had beautiful examples of Bosnian chardaklia houses and traditional solutions for stables and auxiliary buildings. After the Second World War, regardless of the change in the structure of the state and socio-economic relations, people in Vukotici (similar to other villages in Krive Rijeka) lived in a traditional way, in traditional households and houses. In the 1950s and 1960s, the generations born before World War II had already come of age and served their military service in the JNA. They start to found their own independent families, and that meant leaving one room in the shared house of the chardaklia and moving into 'their' house. The first houses built after the Second World War were, in fact, reconstructed and adapted Bosnian Chardaklia Houses built during the Kingdom of SHS-Kingdom of Yugoslavia, where their disposition, construction, materialization and design were more or less preserved, with the of the former open space of the 'house' with a fireplace, a spacious living room with a brick wood-burning stove, in the place of the former open fireplace. The space above the open hearth towards the attic and the rooms arranged there on the first floor (on the first '*boj*') were closed, while the attic space

got spacious chardaks ('chardaks between the rafters') and darkrooms (narrowed attic space on the sides of the chardaks). A good example of this kind of house (which has been preserved to this day) is the house of the brothers Safet and Salih Kamenjasevic (Figures 11, 12), which in the post-war period, in the 1950s, served as a school for the Vukotici village. Mass construction of new houses followed in the 1960s (Figure 13), where houses were built according to the same patterns of house construction from that time throughout Kriva Rijeka⁵.



Figure 11. The brothers Safet and Salih Kamenjasevic house (in the years after World War II, it served as a local school). The wall of the house was built by craftsmen from Dalmatia when they brought a vine sapling that has grown to this day and gives an abundant harvest
Source: Author (5.19.2020.)



Figure 12. The houses in Vukotici were built immediately after the end of World War II
Source: Author (5.19.2020.)



Fadil Ibrahimovic's house on Ibrahimovic Brdo in Vukotici

² Dervis (Sefer) Kamenjasevic graduated from the Faculty of Civil Engineering in Sarajevo, and then worked at „Tehnograd“ and „Siporex“ in Tuzla, where he was its director for many years.

³ Emin (Fehim) Kamenjasevic, after finishing high school in Olovo, graduated from the Higher Pedagogical School in Sarajevo, and then worked as a teacher in elementary schools in the municipality of Olovo. Husein (Safet) Kamenjasevic, Uzeir (Ahmet) Kamenjasevic and Avdo (Sefer) Kamenjasevic graduated from the Teachers' School in Sarajevo, and later worked as teachers, mainly in Careva Cuprija, Kamensko and Jelaske, and in Olov. Eldin (Abdullah) Kamenjasevic graduated from the madrasa in Visoko, then the Islamic Pedagogical Academy in Zenica, and today he is an imam in the Jelaske village. Semso (Nezir) Kamenjasevic and Fadil (Hasan) Krekic graduated from military schools and worked in the JNA until the 1992-1995 war. Dzafer Kamenjasevic worked as a militiaman (and militia commander) in Olovo.

⁴ One of such masters was Ahmet (Avdo) Kamenjasevic, and before him - his father Avdo and his uncles. Avdo Kamenjasevic, a well-known woodworker before World War II, is the maternal grandfather of the author of this work.

⁵ All houses in Kriva Rijeka were built by 3-4 teams of craftsmen. The most famous craftsmen were Kopic (Durak) from Milankovici village, Kamenjasevic from Vukotici, Hasnspahic and Pasic from Zunova, Kljajic from Bukovo Do (mostly, specialized in stone masonry). There were individuals or pairs of men-masters, specialized in some construction works. For example, the famous plasterers were the Helja brothers from Krizevici, Osman Halilovic and Ibrahim Smajic from Recica.



Figure 13. Houses in Vukotici built in the 1960s
Source: Author (5.19.2020.)



Adapted house of Zildjo Kamenjasevic in the Vukotici village (originally built in the 1960s)

The second wave of mass house construction occurred in the 1980s, when children of parents born between the two world wars (and somewhat earlier) built their own houses. Most of these young people are trained masters of all construction specialties who work in well-known construction companies in Sarajevo and abroad. Most often, houses are built in the manner of a 'solidarity aid' ('moba'), that is, a voluntary action in which only a small number of 'masters' are 'on the payroll', while the majority work voluntarily. Houses are built according to a project (very rarely commissioned by an architect) designed by the owner of the house himself (Figure 14). All houses have a more or less modern layout, and are equipped with all modern home installation systems (water supply and sewerage, electrical installations, and some houses also have mechanical installations - central heating).



Adapted house in the Vukotici village (originally built in the 1960s)



The Rifet, Remzija and Izet Kamenjasevic houses in the Vukotici village of (located along the Vukoticki stream)



Adapted Becir Kamenjasevic house in the Vukotici village (it was originally built by Becir's father, Nezir, in the 1960s)





Figure 14. Houses in Vukotici built in the 1980s until today
Source: Author (5.19.2020.)

In the Vukotici village, similar to other villages in Krive Rijeka, barns are an extremely important architectural program. Several authentic stables (whose origins date back to before the Second World War) have been preserved to this day, testifying to the skill of its builders, where wood is the only building material used (Figures 15,16,17). Similarly, mills for grinding grain, summer kitchens ('koliba', 'mutvak'), corn cob storages ('kosh'), grain storages ('hambar'), firewood storages ('drvarnik') are important architectural structures that they follow the traditional way of life of the inhabitants of the Vukotici village (Figures 18,19,20,21).



Figure 15. An authentic barn in the Vukotici village, built entirely of wood (dates before World War II)



Figure 16. Partially reconstructed (reconstructed roof) authentic barn in the Vukotici village (originating from the time before World War II)



Figure 17. Stables for cattle



Figure 18. 'Kamenjasevic mill' on the Vukotici stream located in Ahmet Kamenjasevic's courtyard. Before World War II, the mill was built by Avdo

Kamenjasevic and his brothers, since then it has been at the service (today) of the extended family of the descendants of its builders. It is diligently maintained and is in operation today. From generation to generation, this mill is perceived as 'an extremely dear and respected member of the Kamenjasevic family'.



Figure 19. Summer kitchen ('hut', 'mutvak') next to Becir Kamenjasevic's house



Figure 20. Barn (grain storage) in the Vukotici village



Canopy for firewood next to Zildjo Kamenjasevic's house

Figure 21. Stables and auxiliary buildings in Vukotici

Source: Author (5.19.2020.)

Similar to the construction of mosques in other villages in Kriva Rijeka, the mosque (or masjid) in Vukotici was built with the funds of its residents and voluntary work (Figure 22). That is why the construction of the mosque is taking a long time (currently the construction is in the 'masjid' phase)⁶.

⁶ The original concept of a Muslim place of worship means the name 'masjid' (Arabic: مسجد = masjid, a place for kneeling, performing prayer in Islam), while the term 'mosque' (Arabic: جامع = jami'a) means a place that gathers people. In addition, the word jami'a means university in Arabic. In any case, the term 'mosque' refers to a complex meaning, in the sphere of acquiring knowledge and its manifestation. In Bosnia and Herzegovina, it is common to understand 'masjid' as 'mosque without minaret'.



Figure 22. Masjid in the Vukotici village (In the harem of the mosque, you can already see a linden tree that will grow together with the mosque and the residents of the Vukotici village of)

Source: Author (5.19.2020.)

The Vukotici village is known for a large number of smaller, close family cemeteries (Figure 23).



Figure 23. Cemeteries in the Vukotici village

Source: Author (5.19.2020.)

Similar to other, old and large villages in Kriva Rijeka, the construction of new houses (and the emergence of new settlements) took place near the Vukotici village along the new access road to the village, from its separation from the Olovo-Zavidovici regional road. In the case of the Vukotici village, it is a long stretch, from the new reinforced concrete bridge on the Krivaja River, through the (slightly older) Brdo village (Ibrahimovica Brdo), to the old physical structure of the village (Figure 24).



Figure 24. The new settlement of the Vukotici village
Source: Author (5.19.2020.)

V. CONCLUSION

The natural environment is more or less a given reality that man can preserve, change or divest (change) to the extent that it becomes a 'new natural reality'. These changes are, as a rule, on the other side of long-term human needs, they are rarely beneficial, both in the short term and in the long term^[3, 7]. The most important value of the Vukotici village is the Krivaja River. The preservation of its water potential, purity, 'natural features' (canyons, waterfalls, quiet parts of the flow) and biological diversity will depend not only on the indigenous population living in its catchment area, but also on the development of the consciousness of the narrower and wider community (from local communities to European Union country). In order to ensure the permanent values of the natural environment, spatial plans should be drawn up, from the municipal to the state level, which would regulate the way resources are managed and the place of man in the natural environment (possible interventions in terms of infrastructure, economy, settlements, recreation). Rafting regattas have already started to be organized on the Krivaja River. A sport fishing championship could be organized in a similar way.

The multitude of streams is a huge resource of the Vukotici village that needs to be preserved. Streams are already in danger after the uncontrolled 'trapping' of their sources, and even after the uncontrolled drainage of wastewater and the uncontrolled creation of garbage dumps. The aforementioned spatial plan should be accompanied by appropriate legislation (with an emphasis on the ecological component), which would regulate human behavior in the natural environment. In the last few years, the municipality of Olovo has undertaken significant and very effective activities in this regard. Garbage collection and removal in the Kriva Rijeka area is controlled, and residents pay small co-payments for the services. Forests are an important resource in the area of the Vukotici village. Until now, they have been treated as a source of wood mass (technical wood, firewood), while the ambiguity of their place in the environment (environment that ensures biological diversity, drinking water source base, climate regulator, healthy food base) is ignored. Adequate treatment of forest diversity should be ensured in the future spatial plan, which will be ensured by appropriate legislation through all levels of social organization. Available arable land is a natural constant. Raising the level of its quality should be done and monitored with the help of science and expertise, in a way that ensures ecological food production^[4,5,6,7,9]. Rural tourism could have a significant place in the life of the Vukotici village in the future. Already at this moment, this type of tourism can be practiced, and in order for it to become continuous throughout the year, management infrastructure (travel agencies) should be arranged, from the local community to the highest state level. It seems that only Bosnia and Herzegovina's membership in the European Union can raise the level of awareness of the existence of such business opportunities, which, although obvious, now seem utopian. Since the Vukotici village area is located near Sarajevo, it will always be an attractive place to live. Already today, it is a place for weekend stays, summer vacations and winter holidays for families with a permanent residence in Sarajevo, and this stay, apart from hedonistic ones, also has many practical dimensions (growing fruits and vegetables, for example). World globalization has not bypassed Bosnia and Herzegovina or any part of its territory. After graduating from college, both in Bosnia and Herzegovina and in the world, the young generations of the Vukotici village do not determine their existential space territorially, but according to the assessment of their possibilities and chances on the open world market. There will be those descendants who, in accordance with their nature and professional orientation, will remain in their villages and achieve a high level of existence, in accordance with the narrower and wider social context in which the Vukotici village is now, or in what context it may be in the future. There will also be those descendants who will remain in the Vukotica village, living by inertia, without thinking about perspectives, adapting to every situation, in a similar way as previous generations did. Regardless of the needs that will be created for existential reasons, future generations of the Vukotici village will have more or less pronounced aesthetic and psychological needs for contacts with this space that will confirm those layers of their personality that stand

before every practical action. It should also be emphasized here that the perspectives of people in the future generations of the village of Vukotici will be determined by the relative proximity of Sarajevo and Tuzla. The history of the Vukotici village has so far shown that the natural environment primarily determined human perspectives, while the social environment determined the intensity of life. The entry of Bosnia and Herzegovina into the European Union would render meaningless the rigidity of belonging to ethnic groups, as a fundamental input in the complexity of life, and would affirm all other inputs that enable the all-round development of every human being - an individual and his collectives. In conditions of open possibilities, there will be a general development as well as an affirmation of specificity.

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