

Original scientific article

Received: 17.07.2025;

Received in revised form: 25.07.2025;

Accepted: 21.08.2025;

Available online: 05.11.2025.

UDC: 37:338.48(497.11)

DOI: 10.5937/zrgfub2573107R

EDUCATIONAL AND TOURISTIC POTENTIAL OF THE GEOGRAPHICAL CENTER OF SERBIA

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Abstract: The geographical center of Serbia is one of the points whose coordinates are significant in geostrategic, but also cultural and educational terms. Many countries in the world have managed to take advantage of the fact that some of the important geographical points are located on their territory and turn them into one of the tourist attractions. The paper presents one of the countless possibilities for spatial planning of the geographical center of Serbia - as a geographical polygon, which is confirmed by the adjective “geographic” in the name of the point, and on the other hand, it represents a universal way of marking such important points, which can find their place in tourism, but also in the development of primary and secondary education, through various types of teaching in nature (fieldwork, one-day trip, excursion, outdoor classroom).

Keywords: geographical center, Serbia, spatial planning, geographical polygon

Introduction

The central point of Serbia has been known for a long time, but only among geographers. In addition to the fact that the term “geographic center” appears in introductory Geography classes in the eighth grade of elementary school, or in the third grade of high school, it is generally given little importance. The geographic center could be said to be one of the characteristic points, which differ from other points in space by their position. Examples of such points are: the westernmost point of the continent, the deepest point in the world, the highest peak in the world, the territory through which the equator passes (the Mitad del Mundo site in Ecuador), “Zero Island” (the intersection of Greenwich and the equator in the Gulf of Guinea), state borders (relict and current) and others. Therefore, one of the characteristic points is certainly the geographic center of a territory (continent, region, state, city), object, phenomenon.

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Neglecting the importance of such an important point in space is probably the main reason why there have been no works on its marking in Serbia so far. Although, in fact, there are countless ideas and ways. Therefore, this is one of the first attempts to solve this problem, which is described in more detail in the final paper of the author of this text. In addition to representing an important geostrategic location, the geographical center can also be used as a tourist attraction, which is one of the goals of this paper. "The geographical center is a kind of symbol of the territory and increases the attractiveness of the region from the perspective of tourist and recreational use" (Kalyuzhin et al., 2020). There are indeed many examples of characteristic points converted into tourist attractions in the world (some of them have already been mentioned). The topic of the tourist potential of characteristic points is interesting to authors around the world, which is reflected in a large number of papers. For example, the "Golden Triangle", the tri-border of Thailand, Laos and Myanmar and a region known for its opium production, the remains of the Berlin Wall and Checkpoint Charlie, the border between North and South Korea and other invisible spatial points and lines, have been turned into tourist attractions (Löytynoja, 2008; Więckowski, 2022). However, almost all of them have an identical feature – a monument. The difference is reflected only in the dimensions and appearance. People are attracted by characteristic points, the ends, or rather the beginnings of certain countries, regions, geomorphological objects, and the like. They find it interesting to climb the highest peak in the world, cross from one hemisphere to another, stand at the extreme point of a continent, but it must be admitted that the method of marking in the form of a monument is monotonous and simple. It is necessary to show a certain measure of uniqueness, and a monument, whatever its dimensions, is not. We should strive for originality and turn the entire space into something different from an ordinary landmark. A good example is the aforementioned "Golden Triangle". Since the border of the three countries is located on the Mekong River, the main landmark is a large-sized ship with numerous cultural and entertainment facilities (a giant statue of the Golden Buddha, a park). Something like this should be applied to the arrangement of the geographical center of Serbia and mark it worthy of its name. In order for the entire space to be a unique example of spatial planning, in addition to knowledge of geography, in this case, it is necessary to apply knowledge from landscape architecture, ethnology, botany, spatial planning and other scientific disciplines. A type of such arrangement is a geographical polygon or "open-air geography cabinet", which is not often found in schoolyards throughout Serbia, which speaks volumes about its popularity as a facility for teaching geography. The idea for this type of arrangement, in addition to the aforementioned "Golden Triangle", was also the "Science Park" on Ada Ciganlija in Belgrade, where some of the elements of the geopolygon can be seen (an analemmatic sundial, a model of the Earth on which the daily course of the Sun can be followed).

Also, one of the goals of the work is to prove that, in addition to tourism, such an important space as the geographical center can also be exploited for educational purposes. In this way, it would contribute to the development and popularization, primarily, of geography as a science, and then of the settlement in whose vicinity it is located. A geopolygon as a landmark would represent a good example of how geographical knowledge can be used and presented in an interesting and creative way, bringing one of the more complex sciences closer to the common man and encouraging him to take a greater interest in and explore geographical contents.

Methodology

“The geographic center represents a location point that is, on average, closest to other points of a given territory” (Ilić and Stanković, 2007). Greater interest in the central point of a territory began only in the second half of the 19th century, more precisely in 1872, when the American engineer Julius Erasmus Nilgard was the first to apply and develop the centrography method, which is today an integral part of statistics, in order to determine the demographic center of the United States (Kellerman, 1981). However, the development of technology and engineering, the development of GIS, led to the complete neglect of centrography, because the determination of central points of various categories has been accelerated, data is more accessible, and the analysis of the obtained data has been extremely simplified.

From the pioneering work of engineer Hilgard to the present day, within the framework of centrography, several auxiliary methods for determining the central point of a territory have been developed, of which seven are most commonly used (Ilić and Stanković, 2007):

- 1) *Method of extreme points of a given territory (method of extreme boundary points),*
- 2) *Method of centroid,*
- 3) *Method of isofronts,*
- 4) *Method of translation,*
- 5) *Combined isofront-translation method,*
- 6) *Method of point grid,*
- 7) *Integral method of determining centroid.*

The development of a large number of auxiliary centrographic methods testifies to the fact that each previous method has a drawback, and is not always applicable. For example, the application of the first method involves determining the northernmost, southernmost, easternmost and westernmost points of the observed territory, that is, the coordinates of two meridians and two parallels. Therefore, the first drawback is

the insufficient number of points taken to determine such an important location as the geographical center. The second drawback is reflected in the fact that the method of extreme boundary points is useless for territories that do not have a regular shape (USA, Somalia) or consist of a mainland and island part (Italy, Croatia). This drawback can also be observed when applying the isofront method.

Every metric operation requires precision, which is achieved by forming a high-density grid, which is obtained by separating a larger number of points located at the same latitude or longitude, because the more complex the method, the more accurate the data obtained, and as the final product of the measurement, a point is obtained that can be called the “geographic center”. This is achieved by applying the last two methods - the point grid method and the integral method of determining the center of gravity. It was precisely by applying the integral method that it was measured that the geographic center of Serbia is located in the area of the village of Drača in the vicinity of Kragujevac, which is a generally accepted data, calculated by the formula:

$$\varphi_c = \frac{\iint_{(F)} \varphi N dF}{\iint_{(F)} N dF} \quad \lambda_c = \frac{\iint_{(F)} \lambda N dF}{\iint_{(F)} N dF}$$

φ_c, λ_c – geographical coordinates of the geographic center,

φ, λ – geographical coordinates of the centers of elementary surface,

N – density of elementary particles,

dF – elementary surface area calculated by the formula: $dF = R^2 \cos \varphi d\varphi d\lambda$.

Table 1. Geographical center of Serbia – location information

Geographical center of Serbia	
Settlement	Drača
Municipality	Kragujevac
Coordinates	$\varphi = 44^\circ 01' 14,33''$ $\lambda = 20^\circ 49' 02,58''$
Cadastral Municipality	Drača
Exact Location	Đermovac
Plot number	1944/2
Area (m²)	9382
Land Use	Arable field 2 nd Class
Land Type	Agricultural

Source: Republic Geodetic Authority - eCadastr (https://www.rgz.gov.rs/e-katastar)



Figure 1. Orthophoto of the location of the geographical center of Serbia in the wider area (green triangle) (retrieved from: <https://a3.geosrbija.rs/>)

As already mentioned, other methods have more or less shortcomings in determining the central point. The method with the most shortcomings is the method of the extreme border points of the surveyed territory. In order to obtain the coordinates of the central point, only four locations are taken into account – the northernmost, southernmost, easternmost and westernmost points. For Serbia, these are the following four points (Tadić, 2010):

- Kelebia – northernmost ($46^{\circ}11'25''N$)
- Bezdan – westernmost ($18^{\circ}49'13''E$)
- Srebrna Glava – easternmost point ($23^{\circ}00'43''E$)
- Restelica – southernmost point ($41^{\circ}51'05''N$)

Applying the formula below, we find that the central point of Serbia is located almost in the very center of Kragujevac ($44^{\circ}01'15''N$, $20^{\circ}54'58''E$). The obtained point is not that far from the point obtained by the integral method, but it cannot be considered correctly obtained, precisely because of the small number of points taken for determination.

$$\varphi_c = \frac{\varphi_n + \varphi_s}{2} \qquad \lambda_c = \frac{\lambda_e + \lambda_w}{2}$$

The isofrontal method can, to some extent, compensate for the shortcomings of the first method. An isofrontal is a line that connects points that are at an equal distance from the border of a given territory. In this way, difficulties are overcome in

determining the central point of a territory whose shape is irregular. However, this method should not be applied to territories consisting of a mainland and an island part. The centroid method, translations and point networks require, in addition to the analysis of a geographical map, the availability of appropriate precise data for each elementary surface that makes up a geographical unit (Petrašević, 2005). Therefore, along with the integral method, they are considered the most precise methods for determining the central point.

Based on the examples given, it can be seen that the shape of the observed territory is of great importance, primarily. Countries like Hungary, North Macedonia, Slovakia, and others have a relatively regular shape, so any of the above methods could be used to determine their central point. On the other hand, countries like Croatia, Somalia, and the USA (the distance of Alaska from the rest of the territory), due to their irregular shape, there is a possibility that their central point is not located within their own territory, but on the territory of a neighboring country (the geographical center of Croatia is located on the territory of Bosnia and Herzegovina). For these countries, it is very important to choose the appropriate working method.

Possibilities for spatial planning of the geographical center of Serbia



Figure 2. Geographical Center of Hungary

(Source: <https://www.flickr.com/photos/100954775@N03/10783340394>)

As already mentioned, such an important point requires a landmark worthy of its name and meaning, and a monument does not fully meet this requirement. Moreover, placing a monument in such a place would be just one of countless cases that creates the effect of “already seen” (examples of the use of different types of memorials are presented in Figures 2 and 3). Therefore, such thinking and acting is extremely monotonous, that is, repulsive.

Since this is, among other things, about the development of tourism and the enrichment of the tourist map of Serbia with natural and cultural-educational content, we should strive for something unique, yet simple, which would attract the attention of the youngest population, but also people who are at the top of the age pyramid. We must not forget the adjective “geographic” in the name of the site, but even that can be achieved through an extremely simple type of arrangement. An example of something so simple, yet complex

enough to match the features of the site such as the geographical center and the links between cultural and educational content is a geographical polygon.

A geographical polygon is a type of theme park (in this case, the theme is geography), constructed with the aim of introducing and facilitating the understanding of certain geographical phenomena and processes. Some of the elements of a geopolygon (an analemmatic sundial, terminator) can be seen in the “Science Park” on Ada Ciganlija. The educational nature of geopolygons is reflected in the fact that they are most often

constructed in schoolyards, as they enable “modern geography teaching to cover a large number of teaching topics in the immediate geographical space, since the main purpose of the geographical polygon is to implement the curriculum through the participation of students in practical work, the result of which will be the formation of concrete representations, concepts in geography teaching” (Živković et al., 2015). Of all the instruments of geopolygons, the most important are those for “forming spatial performances, instruments used in the formation of spatial orientation skills, astronomical equipment, meteorological equipment, etc.” (Vujinić and Nišić, 2017). Based on this, Živković et al. (2015) distinguish three types of its application:

- Occasional observations – when students form an awareness of space, develop observation skills, acquire knowledge about absolute altitude, geographical coordinates, master the search for the North Star in the sky, etc.
- One-time practical work and observations – working with equipment as well as with equipment located on the range (sundial, model of the Earth with a network of meridians and parallels).
- Systematic observations – collecting data and monitoring and reading meteorological indicators from automatic or standard meteorological stations in order to train students to work with meteorological equipment, which will make it easier and better for them to understand the importance and role of climatic elements and their influence on atmospheric conditions.



*Figure 3. Geographical Center of Finland
(Source: <https://www.outinthenature.com/where-is-the-center-of-finland/>)*

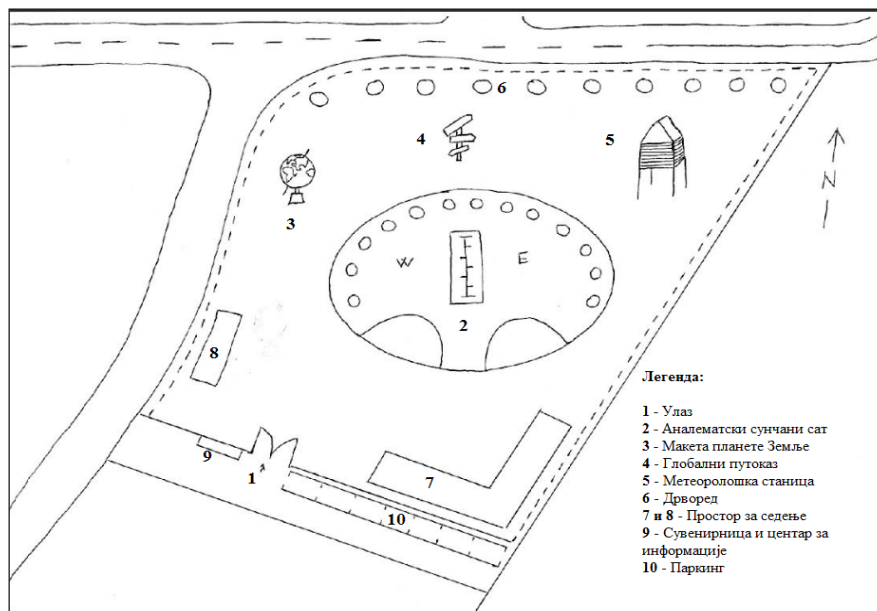


Figure 4. Sketch of the arranged geographical center of Serbia (author)

The geopolygon, which would adorn the geographical center of Serbia, would include the following elements: a model of the Earth, on which one of the consequences of rotation would be observed (the alternation of day and night - the terminator), a global signpost showing the distances between the geographical center of Serbia and some of the world's largest cities (mathematical geography), a meteorological station with basic measuring instruments (thermometer, weather vane, anemometer, rain gauge, barometer, hygrometer) (climatological and hydrological character of the geopolygon), while in the very center of the polygon, at the coordinates corresponding to the central point of Serbia, an analemmatic sundial would be placed, a type of sundial in which the shadow caster is a human.

A sundial is an inevitable element of every geographical polygon, which has a multiple role - as a teaching tool, as a decorative detail on the south wall of a building, a tourist attraction, etc. The main role of sundials is to show the exact time during daylight hours, that is, while the Sun is shining, because it is their main mechanism. How interesting people are to sundials (here the emphasis is primarily on educational institutions) is shown by the fact that only a few schools in Serbia have their own sundials – the “Laza Lazarevic” Elementary School in Šabac, the “Žikica Jovanovic – Španac” and “Andrija Rušo” Elementary Schools in Valjevo, the “Sonja Marinkovic” Elementary School and the High School in Zrenjanin, and others (Petrović, 2009). There are three basic types of sundials, depending on where

they are placed – horizontal, vertical, and analemmatic. Of all the types of sundials, analemmatic sundials are the least common, although their educational character is the most pronounced. The elements of analemmatic sundials are a horizontal ellipse and a date scale in the middle. On the north side of the ellipse, numbers are written, or full hours. The measurer needs to stand at the appropriate place on the scale (depending on the month of the year) and “read” the position of the shadow. Tadić (2010) highlights an example of using an analemmatic sundial as a teaching tool in the first and second cycles of education. In the first cycle of education, students could use such a clock to master orientation in space and time, while it would help students in older grades of primary school to more easily and better master some abstract or not so visible concepts from geography and mathematics, such as coordinate systems, the apparent motion of the Sun, the change of seasons, the construction of an ellipse, measuring angles, and others.

Table 2. Example of an active lesson for second grade elementary school students (part)

<i>Grade</i>	2 nd
<i>Subject</i>	Svet oko nas (World around us)
<i>Teaching Unit</i>	Snalaženje u okolini (Finding your way in surroundings)
<i>Class Type</i>	Processing a new teaching unit with the consolidation of old material
<i>Class Goal</i>	Acquiring knowledge and skills necessary for navigating the environment and connecting them with acquired knowledge about monitoring changes in nature and the characteristics of sunlight
<i>Operational Class Assignments</i>	- Educational: Acquiring knowledge and skills necessary for navigating the environment - Functional: Developing spatial orientation skills - Educational: Encouraging a spirit of inquiry and independence in learning.
<i>Teaching forms of work</i>	Frontal, individual and practical form of work
<i>Teaching methods</i>	Conversational method, demonstrative method
<i>Teaching aids</i>	Analemmatic sundial

Example: Petrovic, A., Petrovic B. (2009)

Table 3. Elements of the analemmatic clock for the geographical center of Serbia

Drača (44° 01' 51,73" N, 20° 49' 14,74" E), a = 200 cm, b = 139 cm									
Time (h)	t (°)	t' (°)	ρ (cm)	α (°)	x (cm)	y (cm)	Date	q	Zodiac
5	-105	-99.18	198.84	-96.0	-197.44	-22.18	1.I	-61.21	
							21.I	-52.51	Aquarius
6	-90	-84.18	199.48	-86.0	-199.0	14.10	1.II	-44.80	
							20.II	-28.42	Fish
7	-75	-69.18	193.28	-75.1	-186.9	49.41	1.III	-18.89	
8	-60	-54.18	181.03	-63.0	-162.2	81.35	21.III	0.86	Aries
9	-45	-39.18	166.01	-49.5	-126.35	107.75	1.IV	11.69	
							21.IV	30.45	Taurus
10	-30	-24.18	151.06	-33.0	-81.92	126.81	1.V	38.97	
							22.V	53.59	Gemini
11	-15	-9.18	140.86	-13.0	-31.9	137.23	1.VI	58.37	
12	0	5.82	139.79	8.5	20.28	138.29	21.VI	62.34	Cancer
13	15	20.82	148.30	29.0	71.09	129.93	1.VII	61.29	
							23.VII	52.37	Leo
14	30	35.82	162.41	46.0	117.05	112.72	1.VIII	46.56	
							23.VIII	28.85	Virgo
15	45	50.82	178.77	61.0	155.03	87.82	1.IX	20.66	
16	60	65.82	191.43	73.0	182.45	56.94	23.IX	-0.46	Libra
17	75	80.82	198.84	84.0	197.44	22.18	1.X	-8.28	
							23.X	-29.25	Scorpio
18	90	95.82	199.45	94.1	199.0	-14.10	1.XI	-37.23	
							23.XI	-53.46	Sagittarius
19	105	110.82	193.19	105.0	186.94	-49.41	1.XII	-57.63	
20	120	125.82	181.03	117.0	162.17	-81.35	22.XII	-62.33	Capricorn

Calculation: author (according to: Tadić, 2010)

Of course, since the geopolygon is not an ordinary landmark, the clock would not look like other clocks. While the main role of standard clocks is to show the exact time, this clock would also have the role of an “identity card” of Serbia, representing everything that makes Serbia famous around the world, in its hour scale. Namely, each hour on this clock would represent a certain symbol of Serbia, such as folk instruments, national drinks, pearls of architecture and construction, famous personalities, endangered plant and animal species, etc. The dial would consist of a series of wooden figures, made of oak (the national tree of Serbia), with a maximum height of up to 30 centimeters, and the figures themselves would be placed on columns, up to 20 centimeters high, which are specimens of rocks found on the territory of Serbia, arranged from the oldest to the geologically youngest rocks, thus giving the geopolygon another element - a geological column.

Table 4. Example of dial layout

Time (h)	Figure	Explanation
5 (6)	Šljivovica, traditional shoes (opanci) and cap (šajkača)	National symbols of Serbia
6 (7)	Stevan Stojanović Mokranjac and Stanislav Binički	The most famous Serbian composers
7 (8)	Nikola Pašić and Svetozar Miletić	The most famous politicians in Serbian history
8 (9)	Saint Sava and White Angel	The most famous figure from the Nemanjić dynasty and the most famous fresco from Serbia
9 (10)	Vuk Karadžić and Dositej Obradović	Symbols of Enlightenment, reform, and development of Serbian language and literature
10 (11)	Karađorđe and Prince Miloš	The Serbian Revolution (1804–1815)
11 (12)	Candle, bread, and wheat	Slava – a custom unique to Serbs
12 (13)	Tennis racket and basketball	Symbols of sports and athletes (basketball and tennis as most popular)
13 (14)	Mihajlo Pupin and Nikola Tesla	Prominent Serbian scientists
14 (15)	Flute, kaval, and gusle	Old Serbian instruments
15 (16)	Gračanica Monastery	One of the most famous monasteries in Serbia
16 (17)	Desanka Maksimović and Nadežda Petrović	Two of the most important Serbian women – symbols of all notable women
17 (18)	Monument ‘V – 3’	Symbol of Serbian suffering during wars of the first half of the 20th century
18 (19)	Isidora Sekulić and Mika Antić	Among the most famous Serbian writers
19 (20)	Brown bear and beaver	Endangered and legally protected animals in Serbia

Proposal: author

We must not forget the biogeographical sphere of the geopolygon, since biogeography is a very important part of geography. The biogeographical character would be reflected in “living” plant specimens, which would consist of rare flower species that can be found on the territory of Serbia, such as Natalia’s ramonda, Kosovo (red) peony, yellow linden and other flowering plants, which would be planted between the “dial” and the date scale of the clock, while the northern side of the polygon would be decorated with specimens of woody species, so as not to disrupt the daily course of the Sun and the direction of the shadow of the “living gnomon” (Pančić spruce, European yew, alder, linden, elm, etc.). The possibility of having a dog on the property (a specimen of an animal species native to Serbia)

should be considered, which would guard the property and which would tour the geopolygon together with tourists. Examples of Serbian breeds according to the Serbian Kennel Club are: Serbian Hound, Serbian Tricolor Hound, Šarplaninac and Serbian Yellow Hound. With a pair of benches, arranged to reflect the arrangement of benches in an amphitheater, this space would be transformed into a real small “open-air classroom”.

Educational and tourist potential

The geopolygon can be used to conduct simple experiments, where students would be able to learn and remember some processes much faster and better through play, the definitions of which they would learn by heart. The results of one study show that children remember only 10% of what they read, about 20% of what they hear, and almost 90% of what they see and apply at the same time (Vujinić and Nišić, 2017), so a geopolygon in this location would be the right solution for conducting practical geography lessons for students from nearby elementary and secondary schools. First of all, it is necessary to animate students, that is, to move them from the position of passive listeners to active participants in the lesson. The results

of the PISA and TIMSS surveys also show that student activity in the lesson is very important, indicating a high level of reproductive, but a very low level of functional knowledge. It could be said that students are able to read, learn and repeat certain material, but they are not able to connect and apply what they have learned, which calls into question the quality of knowledge acquired in school (Kuleto, n.d.). The annual plan and program of each school, which provides for the implementation of student excursions, the geographical center of Serbia, transformed into a geopolygon, would certainly become one of the inevitable destinations for students of all grades of primary and secondary education. In this way, the geopolygon represents a perfect learning environment through which every student (whether in primary or secondary school) would go through and master each level of Bloom’s Taxonomy.



Figure 3. Bloom's pyramid (Source: <http://www.skolskidnevnik.net/2009/03/blumova-taksonomija/>)

Table 5. Example of a one-day trip for eighth grade elementary school students

Time (h)	Destination	Description
8:00 – 10:00	Belgrade – Kragujevac	Departure in front of the school
10:00 – 10:40	Museum ‘Old Foundry’	/
10:50 – 12:00	Memorial Park ‘Kragujevac October’ and Museum ‘21 October’	/
12:00	Departure towards Drača	/
12:15 – 13:00	Geographical Center of Serbia	Walking tour from the Center to the museum
13:30 – 14:15	Ethnographic Museum in Drača	
14:50 – 15:10	Divostin Monastery	Walking tour to the monastery
15:10	Departure towards Kragujevac	/
15:20 – 16:00	Lunch	/
16:15 – 16:45	Ždraljica Waterfall	Walking tour from the waterfall to the hill
16:45 – 17:40	Metino Hill	
18:15	Departure for Belgrade	/
20:00 – 20:30	Arrival in Belgrade – end of program	Arrival in front of the school

Proposal: author

When it comes to tourism, there are certain obstacles related to the geographical center. In order for a regulated and adequately marked geographical center to receive the status of a tourist site, it is necessary to fulfill a number of property - legal, logistical and organizational requirements. The first thing that can be noticed in Figure 1 is the location of the geographical center. As mentioned above, the geographical center is located within the territory of a rural settlement, on a plot of land that is categorized as a class II field, so it is an arable area. Therefore, it is clearly visible in the image that there is no paved road leading to the plot, but only dirt roads. One of the main criteria for a place to become a tourist destination is adequate transport infrastructure, i.e. easy accessibility to tourists from all over the world. Another very important thing, when organizing tours and excursions that include a visit to a large number of sites, is to make sure that they all form a whole, that is, that they are relatively close to each other, in order to avoid the danger of tours being reduced to staying in a bus and panoramic sightseeing along the way.

“Many central points were originally located “in the middle of nowhere”, but were moved to a more convenient location for better accessibility or image reasons. One of the main motives for relocation was usually the potential of the location as a tourist attraction” (Löytynoja, 2008). The same procedure should be applied in the case of the geographical center of Serbia. It is necessary to find a plot of land that

is close enough to the central point, so that the coordinates do not differ much from the true center, and that is along the main road, so that it can be easily reached, and, finally, to “move” the geographical center of Serbia to a better place, which could easily become an unavoidable destination for numerous tourists in the future. An example of a new location for the central point of Serbia is located just a few meters away from the true center, also in Dures, but along the main road and closer to Kragujevac, the first major urban settlement in the area.



Figure 5. New location of the geographic center of Serbia (red triangle) in relation to the true geographic center (green triangle) (taken from: <https://a3.geosrbija.rs/>)

Table 6. Information on the location of the new geographical center of Serbia

Settlement	Drača
Municipality	Kragujevac
Coordinates	$\varphi = 44^{\circ} 01' 51,73''$ $\lambda = 20^{\circ} 49' 14,74''$
Cadastral Municipality	Drača
Exact Location	Divostin
Plot number	1386/1
Area (m²)	1975
Land Use	Arable Field II Class
Land Type	Agricultural Land

Source: Republic Geodetic Authority - “GeoSerbia” portal

The plot is ideally located along the main road and is large enough to create a thematic park of geographical content with accompanying elements, such as a sufficient number of parking spaces and souvenir shops. The second reason is that it is relatively close to the sites for which Kragujevac is best known – the Šumarice Memorial Park and the 21st October Museum, so it would fit perfectly into the ambient whole of Kragujevac and its wider area. The third and not least reason is that the plot is located in Drača, which is also the location of the real center, and moving the center to Divostin or to the very center of Kragujevac would be incomprehensible (in a geographical, but not in a tourist sense), but also inaccurate, since the information has become accessible to everyone and easily verifiable, so such an attempt at data manipulation would be unsuccessful from the start.

It has already been said that the immediate vicinity of the geographical center abounds in rich natural and cultural-historical content, but it is always necessary to look at the bigger picture when it comes to planning and designing destinations that have the potential for a long-term contribution to tourism. Therefore, some localities in the wider vicinity of the geographical center should be highlighted and see whether and how the developed geographical center fits into the tourist mosaic, primarily of Šumadija, at the regional level, and then of the entire Serbia, as the highest territorial scale. There is no need to go too far and discover content in, for example, Subotica or Prizren, it is enough to observe the territory of Šumadija and understand that a marked geographical center would be another pearl in the tourist offer, primarily of Kragujevac, and then of the entire region. Arandjelovac and its surroundings (Risovača Cave, Orašac, Topola and Oplenac, Bukovicka Banja, Bukulja Mountain, Venčac, the “Marble and Sounds” event, Bukulja and Garaško Lakes), Gornji Milanovac and its surroundings (Rudnik Mountain, “Prljuša” archaeological site, Ostrovica, Takovo, Museum of the Second Serbian Uprising, Milošev konak, Vračevšnica Monastery), Gruža (Borac Karst, Gružan Lake, “Colonel Vranić’s House”), are just some of the examples of destinations with rich natural and cultural and educational content with which the developed geographical center of Serbia would certainly fit in perfectly.

Legal and organizational regulation

All of the above cannot be implemented without previously resolved legal and organizational norms. In other words, without resolved legal requirements, the entire plan is in the realm of theory. Therefore, the planning of the development of the geographical center of Serbia is divided into several steps, starting from the idea, to the opening of the geopolygon, as the final product. The idea exists, and the first step has been taken. The next step is the involvement of appropriate state institutions, namely discussions and presentation of the plan to the authorities of the City of

Kragujevac, since the geographical center is located in that region. This is the first of the two most important steps in the entire project, because if the proposal is adopted, the third step can be taken. This involves obtaining Location Information, which provides insight into whether construction work can be carried out on the plot in question. It is necessary to remove doubts as to whether, according to the Spatial Plan of the City of Kragujevac, the plot is located in a zone of any protection or risk (e.g. sanitary protection zone, green area, landslide occurrence, danger of river overflow and flooding, etc.), in order to carry out construction works on it and, most importantly, whether the conversion of agricultural land into construction land is possible.

Once the requested requirement is met, the second most important step follows – a conversation with the owner of the plot, with the help of a legal intermediary, in order to comply with all legal norms. Since it is private property, it is inadmissible to carry out any activities on the plot without the knowledge and consent of the owner. On the other hand, the authorities should make a decision as to whether the observed territory is of public importance, in order to take the next steps. The owner's occupation should also be taken into account. If the owner is primarily engaged in agricultural production, does he/she want to consciously renounce the rights to the plot, losing the share of arable land. Assuming that the geographical center of the site is of public importance and that the owner of the plot wants to cede it to the state, the next step is taken. After the previously fulfilled requirements, it is necessary to carry out the expropriation of the property, respecting the provisions of the Expropriation Law. Then it is necessary to determine the contractors and the procurement of materials, by announcing a tender and reach an agreement with public and public utility companies regarding the maintenance of the site, which includes the maintenance and repair of exhibits and instruments, maintenance of plant crops, supplying the site with water, removing garbage, appointing a professional as a supervisor, who would tour the site and provide tourists with basic information about the site, etc. It is possible that the previous owner may be involved in some of the above activities (souvenir sales, lawn maintenance, security guard), provided that there is interest from both parties (city authorities and the owner). Only under these conditions is it possible to implement the project and consider further steps, in order to create the best possible tourist offer. For example, an ethno-restaurant could be opened near the geopolygon, serving specialties from all parts of Serbia, as well as a "Museum of Serbia", which would exhibit valuable artifacts from all periods of Serbian history. The best solution would be an ethno-village near the polygon, within which the aforementioned facilities would be located.

Conclusion

Based on everything presented in the paper, it can be concluded that the geographical center is an important point of every state and that it should be marked in a worthy manner, in the spirit of geography, inherent to the name it bears. Geography is complex and has the charm that, unlike other sciences and scientific disciplines, it presents its contents in an extremely interesting and creative, and educational way. Therefore, it would be nice if the geographical center of Serbia, one day, was marked in an unusual way, which does not contradict geography, and can also be connected with other sciences, which can be concluded based on the text presented above. The desire to launch an initiative for the development of the geographical center was expanded by the idea of developing the space around the geographical center in order to promote and improve the educational and tourist offer through the application of various activities and scientific disciplines with an emphasis on geography. The ultimate goal would be to put such a developed place on the map of tourist sites and on the list of mandatory destinations for school excursions in most elementary and secondary schools in Serbia, and to increase tourist traffic and the popularity of this part of the country. However, in order to achieve this, it is necessary to regulate all legal and organizational norms, which is not an easy task in the entire project, since just one negative answer is enough for the project not to be implemented. Considering that the immediate and distant surroundings of the geographical center of Serbia abound in rich contents of exceptional importance, both natural and anthropogenic origin, but the center itself can also represent an independent tourist attraction, it would be a shame and a lightly missed opportunity not to make this place a beautiful and unusual environmental whole.

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