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UNIVERZITET CRNE GORE

Centru za doktorske studije I

Senatu Univerziteta

P O D G O R I C A

Vijeće Filozofskog fakulteta na sjednici održanoj 21. 07. 2020. godine, d o n i j e l o j e

O D L U K U

Predlaže se Senatu Univerziteta da formira Komisiju za ocjenu doktorske disertcije **Savremene urbane i ruralne transformacije i upravljanje prostorom Opštine Nikšić od sredine XX do kraja prve decenije XXI vijeka**, mr Biljane Mićković, u sastavu:

1. Dr. sc. Svetislav Popović, Arhitektonski fakultet Podgorica
2. Prof. dr Goran Barović, Filozofski fakultet Nikšić
3. Prof. dr Dragica Mijanović, Filozofski fakultet Nikšić
4. Doc. Dr Velibor Spalević, Filozofski fakultet Nikšić
5. Prof. dr Goran Škatarić, Univerzitet Privredna akademija Novi Sad

D E K A N

Prof. dr Goran Barović

FILOZOFSKI FAKULTET

NIKŠIĆ

Komisija za doktorske studije

VIJEĆU FILOZOFSKOG FAKULTETA

PREDMET: Imenovanje komisije za ocjenu doktorske disertacije kandidatkinje, MA Biljane Mićković:

1. Dr.sc. Svetislav Popović , Arhitektonski fakultet Podgorica, mentor
2. Prof. dr Goran Barović, Filozofski fakultet Nikšić, član komisije
3. Prof.dr Dragica Mijanović, Filozofski fakultet Nikšić, član komisije
4. Doc. dr Velibor Spalević, Filozofski fakultet Nikšić, član komisije
5. Prof.dr Goran Škatarić, Univerzitet Privredna akademija Novi Sad, član komisije

S poštovanjem,

Predsjednik Komisije za doktorske studije

Prof.dr Živko Andrijašević

Nikšić, 07.07.2020. god

ISPUNJENOST USLOVA DOKTORANDA

OPŠTI PODACI O DOKTORANDU			
Titula, ime, ime roditelja, prezime	mr Biljana (Bećko) Mićković		
Fakultet	Filozofski fakultet, Nikšić		
Studijski program	Geografija		
Broj indeksa	1/10		
NAZIV DOKTORSKE DISERTACIJE			
Na službenom jeziku	Savremene urbane i ruralne transformacije i upravljanje prostorom Opštine Nikšić od sredine XX do kraja prve decenije XXI vijeka		
Na engleskom jeziku	Modern urban and rural transformations and management of the space of the municipality of Niksic from the middle of the XX century to the end of the first decade of the XXI century		
Naučna oblast	Geografija – Prostorno planiranje		
MENTOR/MENTORI			
Prvi mentor	Prof. dr Svetislav Popović	Univerzitet Crne Gore	Arhitektura i urbanizam
KOMISIJA ZA PREGLED I OCJENU DOKTORSKE DISERTACIJE			
Prof. dr Svetislav Popović, mentor		UCG, Crna Gora	Arhitektura i urbanizam
Prof. dr Goran Barović, član komisije		UCG, Crna Gora	Geografija
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Prof. dr Goran Škatarić, član komisije		Univerzitet Privredna akademija Novi Sad, Nacionalni parkovi Crne Gore	Ruralni razvoj
Prof. dr Dragica Mijanović, član komisije		UCG, Crna Gora	Geografija

Datum značajni za ocjenu doktorske disertacije	
Sjednica Senata na kojoj je data saglasnost na ocjenu teme i kandidata	23.06.2016.
Dostavljanja doktorske disertacije organizacionoj jedinici i saglasanost mentora	Saglasnost mentora: 1.07.2020. Predaja disertacije: 6.07.2020.
Sjednica Vijeća organizacione jedinice na kojoj je dat prijedlog za imenovanje komisija za pregled i ocjenu doktorske disertacije	jul 2020.

ISPUNJENOST USLOVA DOKTORANDA
U skladu sa članom 38 pravila doktorskih studija kandidat **je**/nije cjelokupna ili dio sopstvenih istraživanja vezanih za doktorsku disertaciju publikovao u časopisu sa **(SCI/SCIE)/(SSCI/A&HCI)** liste kao prvi autor.
Spisak radova doktoranda iz oblasti doktorskih studija koje je publikovao u časopisima sa (upisati odgovarajuću listu)

1.Mickovic, B.; Mijanovic, D.; Spalevic, V.; Skataric, G.; Dudic, B. (2020): Contribution to the Analysis of Depopulation in Rural Areas of the Balkans: Case Study of the Municipality of Niksic, Montenegro, Licensee MDPI, Basel, Switzerland. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (http://creativecommons.org/licenses/by/4.0/), 2020, Pages 1-23.
https://www.mdpi.com/2071-1050/12/8/3328/pdf

2. Mickovic, B. (2019): Značaj prostorno planskih dokumenata u periodu od 1883-2000. godine za planiranje i uređenje prostora opštine Nikšić, Časopis „Tehnika" 73 (LXXIV) 6, UDK: 62(062.2) (497.1), ISSN 0040 / 2176, UDC: 711 (497.16) „1883/2000", 779-791
https://scindeks-clanci.ceon.rs/data/pdf/0040-2176/2019/0040-21761906779M.pdf

3.Mickovic, B. (2018): Development of industry, energetics and traffic and their influence on Nikšić municipality and its territory, časopis „Izgradnja" 72. (2018) 11-12, UDK: 624+71+72 (05), ISSN 0350 - 5421, UDC: 711.5 (497.116), 621-625
http://bibliografije.nb.rs/bibliografija/CIP%202015/CIP_Art_ser_12_2018/zapisi19.html

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http://www.nbcg-digitalnabibliografija.me/bibliografija_tekuca/clanci_2016/zapisi056.html

5.Mickovic, B.(2014): Razvoj prostornog planiranja u Sloveniji, Časopis „Izgradnja" 68. (2014) 3-4,UDK: 624+71+72 (05), ISSN 0350-5421, UDK: 711 (497.12) 50-156
http://bibliografije.nb.rs/bibliografija/tekuca/clanci/serijaC/tclan_c_2014/zapisi004.html

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https://scindeks-clanci.ceon.rs/data/pdf/0040-2176/2014/0040-21761404701M.pdf

7. Mickovic, B. (2013): Nacionalni nivo planiranja u razvijenim zemljama, časopis „Tehnika" 63 (LXVIII) 4,UDK: 62(062.2) (497.1), ISSN 0040 – 2176, UDK: 338.26 (1-672), 753- 758
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8. Mickovic, B. (2013): Perspektive razvoja turizma u opštini Nikšić, časopis „Ecologica" 20 (2013), br.69, UDK: 502.7, ISSN 0354 – 3285, UDK: 338.48, 32- 38
http://www.ecologica.org.rs/SADRZAJ-69-2013.pdf

9. Mickovic, B. (2013): Artificial lakes as tourist potential of municipality of Niksic, časopis **eee** „Energija – Ekonomija – Ekologija" br.5. UDK: 620.9:65.012.3

Obrazloženje mentora o korišćenju doktorske disertacije u publikovanim radovima

Kandidatkinja se u radu *Causes and consequences of depopulation in rural areas of Balkan: Case study of the Municipality of Niksic, Montenegro, Southeastern Europe* bavila analizom demografsko populacione erozije ruralnog prostora opštine Nikšić u drugoj polovini XX i prvoj deceniji XXI vijeka. U radu je prikazan proces depopulacije ruralnog prostora, uzroci i posljedice kroz analizu: kretanja broja stanovnika i gustine naseljenosti seoskog i gradskog stanovništva i starosne strukture stanovništva. Rad je rezultat analize urađene u okviru istraživanja i izrade doktorske teze mr Biljane Mićković i čini njen sastavni dio.

Datum i ovjera (pečat i potpis odgovorne osobe)

U Nikšiću, 6.07. 2020. godine

UNIVERZITET CRNE GORE

MP

DEKAN

Prilog dokumenta sadrži:

1. Potvrdu o predaji doktorske disertacije organizacionoj jedinici
2. Odluku o imenovanju komisije za pregled i ocjenu doktorske disertacije
3. Kopiju rada publikovanog u časopisu sa odgovarajuće liste
4. Biografiju i bibliografiju kandidata
5. Biografiju i bibliografiju članova komisije za pregled i ocjenu doktorske disertacije sa potvrdom o izboru u odgovarajuće akademsko zvanje i potvrdom da barem jedan član komisije nije u radnom odnosu na Univerzitetu Crne Gore

Biografija doktoranda

Biljana Mićković, rođena je 15.01. 1970.g. u Šavniku. Osnovnu i srednju školu završila je u Nikšiću. Diplomirala je 1994. godine na Filozofskom fakultetu u Nikšiću na odsjeku za istoriju i geografiju. Zvanje magistra geografskih nauka - Geo-osnove prostornog planiranja stiče 2010.g. na Filozofskom fakultetu u Nikšiću – Katedra za geografiju. Tema magistarskog rada „Održivi razvoj ruralnog prostora opštine Nikšić". Rad je ocijenjen ocjenom „A" (10). Srednja ocjena na postdiplomskim studijama je 9.65. Doktorske studije upisuje 2010. godine na Filozofskom fakultetu - Katedra za geografiju, smjer Geo – osnove prostornog planiranja.

U periodu od 1994. do 2003. radila je u Gimnaziji Plužine kao prof. istorije i geografije. Od 2003. godine radi u OŠ „Braća Labudović" kao prof. geografije. U julu 2015. godine Ministarstvo prosvjete dodijelilo joj je zvanje *Nastavnik – viši savjetnik* za postignute rezultate u radu sa učenicima i drugim učesnicima u obrazovanju i osposobljavanju, profesionalnom razvoju, upotrebi stručnog znanja stečenog obrazovanjem i usavršavanjem i drugim radom koji predstavlja posebnost struke. U istoj ustanovi od 2016. godine bila je angažovana na poslovima direktora.

Objavila je niz radova u relevantnim publikacijama.

Živi u Nikšiću sa suprugom i dvije kćerke.

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Bibliografija doktoranda mr Biljane Mićković

1.Mickovic, B.; Mijanovic, D.; Spalevic, V.; Skataric, G.; Dudic, B. (2020): Contribution to the Analysis of Depopulation in Rural Areas of the Balkans: Case Study of the Municipality of Niksic, Montenegro, *Sustainability, 12*, 3328.
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9. Mickovic, B. (2013): Artificial lakes as tourist potential of municipality of Niksic, časopis **eee** „Energija – Ekonomija – Ekologija" br.5. UDK: 620.9:65.012.3

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Contribution to the Analysis of Depopulation in Rural Areas of the Balkans: Case Study of the Municipality of Niksic, Montenegro

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Abstract: This paper analyses demographic trends and population decline of the rural area surrounding Niksic, Montenegro, from the second half of the 20th century to the first two decades of the 21st century. After World War II, industry in Niksic began to develop strongly. A large number of state enterprises started to operate, and the consequent industrialisation and improved living conditions triggered a wave of migration from the surrounding rural areas to Niksic. The paper describes the depopulation of rural areas and the causes and consequences of migration within the Municipality of Niksic based on an analysis of population movement and density, the rural and urban populations, and the age structure of the population. Transformations of the economy after 1990 indicate that the neglect of agriculture and the destruction of agricultural land are mistakes that will prove difficult to correct. The results of our research reveal that, today, revitalisation of the countryside is only possible if non-agricultural activities are brought to the area centres and the quality of life is improved in the villages, which would reduce unemployment in the city. A solid traffic infrastructure between individual settlements and their connection with the city is also necessary. Between 2003 and 2011, the agricultural population increased by 1.2%, which gives hope because agriculture is now being recognised as significant, and a movement for changing the inherited negative perception of it is being created. This research is addressed to the state and municipal administrations of the region with the message to implement responsible and timely measures to revitalise the countryside and stop the extinction of the villages.

Keywords: depopulation; migration processes; demographic factors; rural development

1. Introduction

Rural migration, which may be from rural to urban areas, be permanent or temporary, as well as be internal or international, constitutes a key component of human population movement. Rural areas contain most of the world's natural resources, such as water, land, and forests, and rural migration and its relationship to the rural environment should attract increasing interest in research on depopulation in rural areas, its eco–socio–economic damages, and population–environment linkages [1]. A rapidly developing economy and growing urbanisation have resulted in the largest rural-to-urban migration in human history [2]. This is a widespread phenomenon in developing countries [3], but has also occurred

in most industrialised countries and has contributed significantly to a reduction in agro-ecological productivity [4]. Therefore, a comprehensive understanding of its prevalence and magnitude over the territory is increasingly important for sociological and political reasons [5–7]. This paper specifically examines the case of Niksic, Montenegro. Because of the limited availability of internal migration data for Montenegro, which was previously derived from the decennial population census and a small-scale household survey, we could not obtain suitable observations for rural depopulation dynamics across the country.

The methodology of the Organisation for Economic Co-operation and Development (OECD) defines that a community is considered rural if the population density is less than 150 people per square kilometre [8–11]. Taking this into account, almost all of Montenegro can be considered rural. Looking at the three regions of Montenegro (northern, central, and southern), and according to the OECD methodology, the northern region covers 13 municipalities and is predominantly rural (in rural areas lives 59.7% of the population), while the southern coastal and central regions (41.7% and 20.4%, respectively) are considered transitional [12–14].

Rural areas are characterised by three interrelated trends: economic diversification, deagrarianisation, and depopulation [15]. Montenegro, and particularly the municipality of Niksic, exemplifies these trends. Until the second half of the 20th century, the countryside in Montenegro had a healthy population pyramid; it was a source of population renewal, had a young labour force of considerable size, and had great potential in terms of population reconstruction and strengthening of the urban settlements [12,13].

The objective of this paper is to contribute to the analyses of the depopulation processes of rural areas of Montenegro, providing some specific views from studying the area of the Municipality of Niksic for the period from the second half of the 20th century to the first two decades of the 21st century. In addition to the causes, the spatial and temporal movement of the population of Niksic and the physical and cultural consequences will be discussed.

2. Materials and Methods

2.1. Montenegro

The study area of the Niksic Municipality is located in Montenegro, which is part of the Balkan Peninsula. It is situated in south-eastern Europe (Figure 1) between the Adriatic Sea (coastal line of 293.5 km) and Croatia (to the southwest), Bosnia and Herzegovina (northwest), Serbia (northeast), and Albania (southeast), with a total border line of 680 km [16].

Figure 1. Position of Montenegro in Europe [16] and the municipality of Niksic in Montenegro.

The terrain has a highly indented coastline, with a narrow coastal plain on the backdrop of rugged, high limestone mountains and plateaus, with a mean elevation of 1086 m. The Dinaric Alps are a western Balkan mountain range comprising mainly NW–SE-oriented ridges [17,18], with several geomorphological regions (Figure 2).

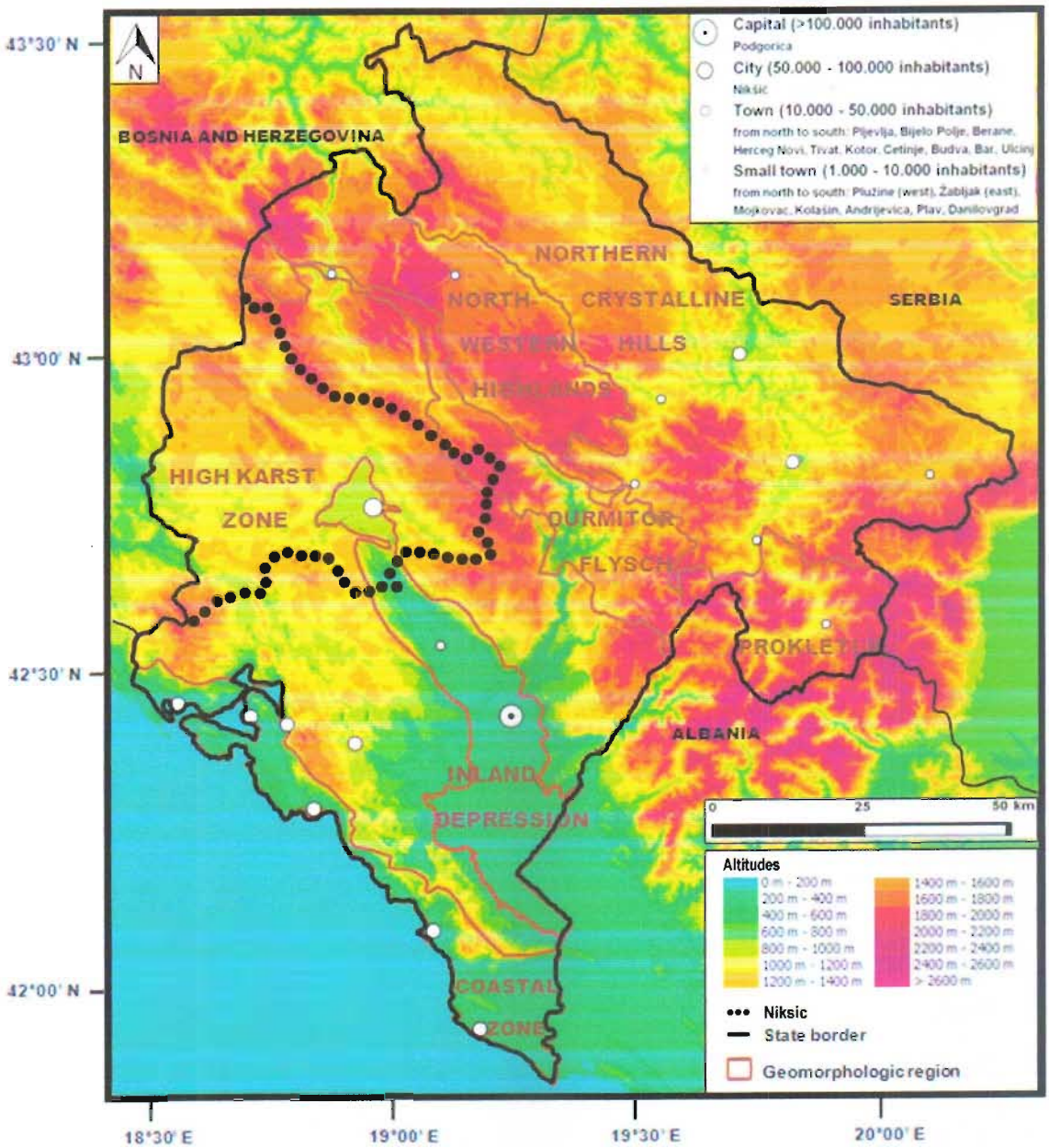

Figure 2. Geomorphologic regions of Montenegro with a range of altitudes and distances [18–20].

The coastal zone has small, sandy beaches with limestone rocks behind them (heights of 800 m), a ria coast centred on Boka Kotorska, and a large debris cone on which sandy beaches have developed in the river basin of Bojana in the southeast [21]. The central and northwest zone has Quaternary materials and comprises Niksic Polje, Zeta-Bjelopavlici Valley, with the capital of Podgorica centrally located in this plain, and Skadar Lake south of Podgorica. To the north-northwest is the region of Durmitor Flysch, with a relatively soft lithology dominated by sandstones, siltstones, marls, and conglomerates. To the east-northeast is the Polimlje region and Prokletije Mountains, with Zla Kolata (2535 m),

the highest peak of Montenegro. This part consists of a varied geology (schists, sand- and limestone, volcanic outcrops, and dolomites) and glacial geomorphic features. The canyon of the Tara River represents the border with the northern crystalline hills and covers a large part of the country along the northeast border. This part mainly has sandstone sediments, flysch, and softer materials, forming an undulating landscape.

The percentage shares for the three different types of land use are as follows: agricultural land—38.2% (arable land: 12.9%; permanent crops: 1.2%; permanent pasture: 24.1%); forest—40.4%; and other—21.4%. Plant Production is characterized by a large number of small agricultural holdings, all of which grow different crops. Favourable natural conditions enable the growing of citrus and continental fruits, as well as almost all types of vegetables. According to the Sectoral Study for Fruits and Vegetables (2014), citrus production represented the largest amount (24.4%) closely followed by plums (24.2%), mostly used for making brandy, while a small percentage is processed into jams and preserves, dried, or consumed fresh. The production of apples represents 15.8% and figs 11.1%; both of these are also significant. The most dominant crops in Montenegro are maize, wheat, barley, alfalfa, and clover. Within the scope of vegetable production, potatoes represent half of the produce; this crop is mostly grown in the Northern Region.

Uncultivated, natural meadows make up the majority of the total meadow area. They have relatively low yields (1.5–18 tons of hay/ha), because no agro-technical measures of any kind are applied to large parts of this land. Natural meadows and pastures, which have the greatest potential for the production of forage plants, are increasingly exposed to degradation; this is reflected in unfavourable changes to the botanic composition, in increased levels of worthless and harmful plant varieties, etc.

Livestock breeding allows Montenegro to exploit less productive areas (pastures and meadows). Cattle breeding is the most important sector of livestock production with approximately 89,058 heads, of which 65,691 are breeding heads (cows and breeding heifers). Sheep breeding represents an important branch of livestock breeding, with 6088 holdings that rear sheep (190,843 heads). Goat breeding is very important in the karst areas of Montenegro, especially for the studied area of Niksic, because natural conditions are considerably less favourable for rearing other types of ruminants (bovine or ovine). The total number of goats reared on agricultural holdings in Montenegro amounted to 29,657.

Organic production is a key development opportunity for Montenegrin agriculture, especially taking into account the availability of very favourable natural conditions that are reflected in the country's uncontaminated soil, water, and air.

2.2. *Recent History*

Montenegro is a Mediterranean country with a turbulent history. After World War II, from the Kingdom of Yugoslavia (1918–1945), post-war Yugoslavia (1945–1990) was reorganised as a federation of six socialist republics, including the following: Bosnia and Herzegovina, Croatia, Macedonia, Montenegro, Serbia, and Slovenia [22]. At that time, industrialisation was causing migration from rural areas to towns, which caused the intensification of urbanisation processes and the abandonment of farming practices [23]. After 1950, agricultural collectivisation faded away and farmers shifted from subsistence- to market-based production in the next decade (1960s). Then, the steel and aluminium industries, as well as the energy sector, became extremely important as the State forced the development of the transport infrastructure [24]. The end of the 20th century was characterised by the failure of the economic reformation in relation to the open market, and a large decline in the economy took place in all the socialist republics of Yugoslavia [25]. Then, the State disintegrated, ending the last decade of the 20th century with the Yugoslav wars. Although Montenegro was outside of the war zone, the economic system of this small Balkan country suffered extensively. The decision to dissolve Yugoslavia (of which Serbia and Montenegro were then part) was concluded in 2006 after a referendum, when Montenegro and Serbia became independent states.

2.3. Population

According to the data received from MONSTAT, but also from the latest information received from the US Bureau of the Census (2020) and based on vital statistics registration systems, statistics of population censuses, sample surveys pertaining to the recent past, and assumptions about future trends, the population of Montenegro is expected to be about 609,859 by July 2020 (MONSTAT, 2011 Census: 620,029). In terms of a world country comparison of populations, it is in 171st position out of 238 countries [16,26–30]. Population pyramid for Montenegro compared with Serbia, Croatia, and Albania presented at the Figure 3.

Figure 3. Population pyramid for Montenegro compared with Serbia, Croatia, and Albania.

Age structure: The distribution of the population according to age (classified by sex and age group) is as follows: children (0–14 years), 18.14% (male, 57,402; female, 53,217); early working age (15–24 years), 12.78% (male 40,220; female, 37,720); prime working age (25–54 years), 39.65% (male 120,374; female, 121,461); mature working age (55–64 years), 13.41% (male, 40,099; female, 41,670); and elderly (65 years and over), 16.02% (male, 42,345; female, 55,351). These estimations are for July 2020 [12,13,16,26–30].

Dependency ratios: With the dependency ratios, we measured the population age structure, which relates to the number of individuals who are economically "dependent" on the support of others. Dependency ratios contrast the ratio of the elderly (ages 65+ years) and youths (ages 0–14 years) with the number of those in the working-age group (ages 15–64 years). The dependency ratios were as follows: total dependency ratio, 51.1; youth dependency ratio, 27.3; and elderly dependency ratio, 23.8. According to the latest statistical data and surveys, the potential support ratio for Montenegro is 4.2 for July 2020.

Median age: The population is divided into two numerically equal groups: half are older and half are younger than this age. This single index summarises the age distribution of the population in Montenegro. The median age for the total population is 39.6 years; for males, it has been calculated as 38.1 years, and for females, it is 41.1 years. All these statistics are estimated for July 2020. A country comparison for Montenegro for this factor places it at 54th in the world [12].

Population growth: The population growth rate is −0.37% (2020 estimation), and Montenegro is in the 221st position compared with the other countries. The birth rate is 11.5 births per 1000 people (2020 estimation), putting Montenegro 171st on the list of the world countries. The death rate is 10.4 deaths per 1000 people, putting it in 30th position on the world country comparison list. The net migration rate is −4.9 migrants per 1000 people (2020 estimation).

2.4. The Municipality of Niksic

The Studied area is covering the surface of 2065 km^2, and this is the largest municipality in Montenegro (previously in Yugoslavia), and it accounts for 15.0% of the territory of Montenegro (13,812 km^2). Niksic, with a total population of 56,970, is also the second largest city in Montenegro after Podgorica. The complex relief basis, climatic conditions, favourable geographical position, and transport links with the rest of Yugoslavia all affect the socio-economic development of the Municipality of Niksic [31,32].

The territory of the studied area lies within a karst area where there is little arable land and little water. Therefore, except for extensive livestock farming, agriculture is very limited. In addition to the Niksic Field, in the centre of which the town of Niksic has developed, there is a significant amount of agricultural land in the Zupa of Niksic and in the Grahovo Field. However, because Niksic has become an important industrial centre, agricultural land has been lost to industrial and residential buildings, roads, landfills, etc. Therefore, the Niksic Field has lost its agrarian significance.

Since the 1950s, the construction of large industrial facilities has transformed Niksic into the main industrial centre of Montenegro. In 1948, bauxite mines began to operate, employing approximately 1200 workers. In 1955, the Boris Kidric ironworks was established, employing approximately 7460 workers. The Trebjesa Brewery was renovated in 1946, and its extension was completed in 1962. The Montenegro construction company was founded in Niksic in 1947 and employed approximately 3000 workers. The mill, metalwork, and textile industries began to develop from 1948, employing approximately 1500 workers. This industrial development triggered massive migration from rural areas to the urban area of the municipality, with many migrants finding employment in the various industries. The massive abandonment of the countryside, especially by those of working age, led to a sharp decline in agriculture and the devastation of many areas, which had serious consequences for the Municipality of Niksic.

Due to the large number of settlements and different degrees of depopulation, we employed the concept of demographic regionalisation in this paper. Rural settlements were divided into three zones according to the distance from town, following the rule that the intensity of depopulation increases with greater distance from the town centre. The zones are named based on their proximity to town and the relief characteristics of the terrain. In the first zone (Predominantly Urban—the Suburban zone), there are 13 settlements in the immediate vicinity of the town. In the second zone (Intermediate—the Greater Suburban zone) that borders the first zone, there are 20 settlements at a greater distance from town. Some of these are in poor terrain; others are on flat land, and therefore the depopulation is less severe. In the third zone (Predominantly Rural—the Mountainous zone), which includes 76 settlements mainly located in the mountainous area of town (except for a few settlements in the Zupa of Niksic that have less pronounced depopulation), depopulation is most evident. Indeed, there are three settlements without any residents.

Standard demographic methods, such as analyses and syntheses, have been employed to determine the socio-economic characteristics of the rural area of the Municipality of Niksic and to detail the natural, economic, social, and historical conditions of the observed rural area. Mathematical and

statistical methods for working with statistical material, tables, and graphs, including Microsoft Excel, and an analysis of available international and national sources on rural prosperity and depopulation, have also been employed.

2.5. Selection of Local-Scale Study Sites

A variety of settlements in terms of demographic and physical characteristics have been selected to investigate the causes and consequences of depopulation in rural areas in the Municipality of Niksic and its residents in relation to their lifestyles and environment. Therefore, data about housing types per settlement were used from the statistics office of Montenegro—MONSTAT; all dwellings have been categorised as permanently/seasonally occupied or abandoned. Ultimately, nine settlements were chosen as study sites, representing all settlement types of three regions in the Municipality of Niksic. The quotes were marked with codes of themes related to the causes and consequences of depopulation in rural areas. Afterwards, relations between coded quotes were explored by bringing them together per category and village to study the indicators of causes and consequences of depopulation in rural areas. The shortest distance to the city by road was measured on Google Earth.

2.6. Accessibility Analysis

The accessibility analysis used to build the typology was carried using the OECD methodology to build the typology [7–11]. In a first step regions were classified as Predominantly Urban (PU), Intermediate (IN), or Predominantly Rural (PR). In order to identify a region as remote it was needed to perform an accessibility analysis. This type of analysis quantifies the driving time needed for a certain percentage of the population of a region to reach a populated centre. In our study, a region is considered to be remote if at least 50% of its population needs to drive 30 min or more to reach a populated centre. The main output of our accessibility analysis is a road network for the service areas with 30-min time frames for the studied Municipality of Niksic.

The driving time to reach a populated centre can be influenced by several factors, in particular, the driving speeds, the traffic around urban areas and the slope of the roads. To take into account these three factors, a slope and a density index were computed. The slope index is a proxy for the influence of the terrain. The slope of the terrain was calculated using a digital elevation terrain model. The resulting slope values were reclassified in three intervals: 0%–5%, 6%–11%, and more than 11%. For the first interval, the slope index takes a value equal to 1, while for the second and third intervals it takes the values of 1.2 and 1.5, respectively. To simplify the analysis, it was assumed that no traffic is found outside urban area of Niksic, while the traffic in urban areas has a bigger effect on minor arterials than on the principal ones. A weight equal to 1 was given to all road segments outside an urban area, while the principal arterials within an urban area, respectively, received weights equal to 1.5 and 2. Finally, the road network was intersected with the slope and urban polygons layers to create a road network where every segment has a specific value assigned for the slope of the terrain and a value to indicate if the segment belongs to an urban polygon. From this layer, the crossing time of every segment in the network can be calculated as follows:

$$\mathrm{CTi} = (\textit{Distance of the segment} \times \textit{slope index} \times \textit{densty index}) / (\textit{speed limit} \times 1000/60)$$

We calculated the density of the road network, G, using the Surface and Distance [33] and the IntErO models of Spalevic [34–37]. We based the calculation on the following formula:

$$\mathrm{G} = \Sigma L / F$$

where sum (Σ) L is the total length of the road network in km, and F is the surface of the studied area. We did the analysis of both internal areas: the studied areas for the 30-min time frame and the density of the road network for all the studied area of the Municipality of Niksic. The surface of the 30-min

time frame area in the total area of the Municipality was calculated using the Surface and Distance model [33]. The result of the analysis is a map of the service area for a 30-min time frame.

2.7. Conducting and Processing Interviews

Semi-structured interviews were conducted to gather first-hand information about depopulation in rural areas in this municipality and, thus, the causes and consequences of depopulation over time. The questionnaires that were used comprised of the following main subjects: the basic data about interviewees, the situation related to the past and current agricultural production and natural resources management, land-use aspects, information on landscape and infrastructure, some physical geographical processes, personal views, and migration.

We also wanted to highlight that some questions, such as "How many head of cattle (or how much equipment-mechanisation) do you currently have now at the farm?" were not aimed at obtaining exact quantitative data; instead, they were intended to give an idea about magnitudes. We gave participants the freedom to deliver their stories with narratives, without interrupting and just supporting them to speak freely, but we recorded the full interviews. This approach, with the initial ice-breaking, offers a lot of space to receive different theoretical ideas and empirical findings; this guaranteed conversation about preconceived topics, while the participants still have freedom to bring new aspects to our research [17–19]. Moreover, we provoked "oral histories" (about memories related to the migrations, industrialisation, community), which helped to clarify key periods of change, motivations, meanings, and lifestyles [18,19,38]. When possible, walks were carried out with subjects of interviews to let them show us interesting phenomena in the field (Figures 4–7).

Figure 4. Balosave.

Figure 5. Bogetici.

Figure 6. Dragovoljici.

Figure 7. Grahovo.

We started with the idea of having two interviews for each of the 11 settlements, but ultimately, one, two, or three interviews have been executed in each settlement until the key study questions were answered [38–40]. In total, 22 different (group) interviews were undertaken. As knowledge about depopulation in rural areas through recent history was required, elderly people were mainly interviewed; approximately 70% of the interviewees were older than 60 years. In contrast, we also interviewed the youth with the idea of receiving information on their needs and expectations. All the interviews were recorded (audio recording, notes, photographs, and video recording), transcribed, and loaded into the qualitative data analysis to structure all data and implement a constant comparison (using an open coding approach [41]). The examples of the interviews at Musikic's family from Zupa Niksic, Bastaji Village, and from the visit to the Bosko Draskovic's family from Grahovo held on February 2020; but also the Summary of the Interviews with youth living in the rural areas of Niksic are presented at the Supplementary Materials.

3. Results and Discussion

3.1. Accessibility Analysis

It is a well-known fact that well-established infrastructure contributes to a better quality of life, and reduces depopulation process of the rural areas. A good road infrastructure is a key prerequisite for the development. It enables better communication with markets and enables product placement, increases competition, and provides opportunities for additional income. Some rural areas of the studied region are with poorly developed transport, and with little or no social or economic infrastructure. The distance to the food shops and elementary schools is, on average, 3 to 4 km, and to the high schools and bank it is 10 km or more. In addition, the physical condition of the water supply network is poor; not all villages on the remote area have an electricity supply and the telecommunication network is undeveloped and more often does not offer the possibility of the Internet. In order to identify a region

as remote we performed an accessibility analysis using the driving time needed for the population of a region to reach a city center.

We categorized a region to be remote when the population needs to drive 30 min or more to reach a city center. The main input of the accessibility analysis is a road network map (Figure 8).

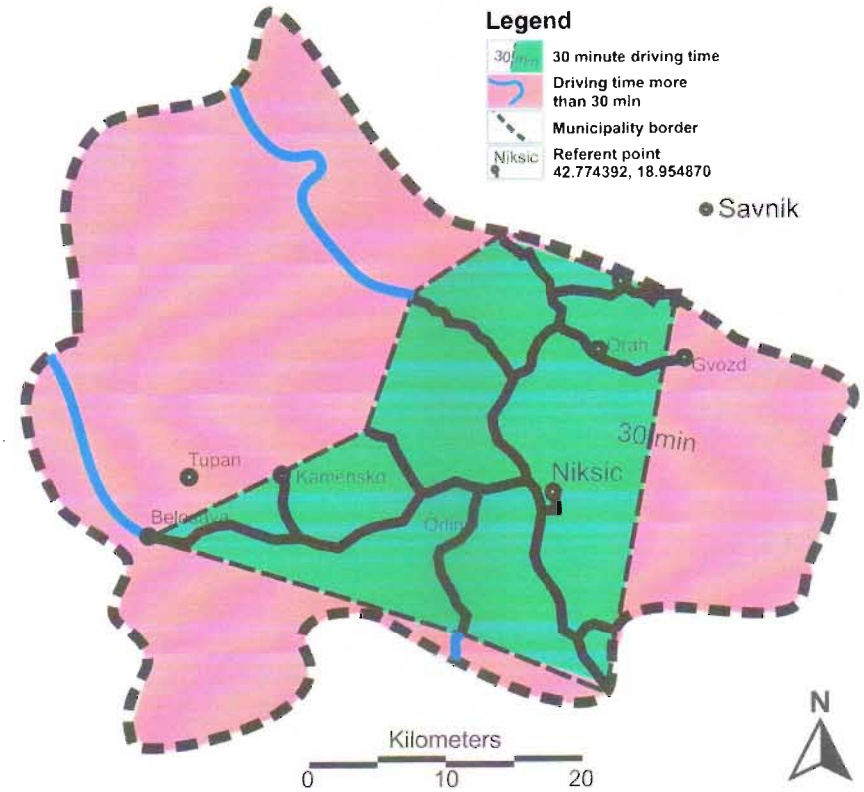

Figure 8. Service areas for 30-min time frames, Municipality of Niksic, Montenegro.

The road network is used to compute the driving time needed to reach the urban center. In the case of Niksic, the road network included all the types of roads classified. To simplify the composition of the network, and to deal with the absence of some interconnections, three main types of roads were chosen: paved roads, non-paved roads and paths. The road network used for the analysis comes from the Google Maps Database.

The studied region of the municipality of Niksic, F, is 2065 km^2. The density of the road network, G, for the total area of the Niksic Municipality is 0.10. The value of the G coefficient of 0.10 indicates that there is a low density of the road network of the Niksic Municipality. Calculating the inputs for the service areas with 30-min time frames we concluded that the surface of this subsection is 718 km^2, with the total length of the road network being 123 km.

The service areas with 30-min time frames represent 35%; the areas more than 30-min time frames are 65% of the total area of the studied Municipality of Niksic. The density of the road network of the service areas with 30-min time frames, G, is 0.17, which indicates that there is also a low density of the road network for this subsection.

The causes of migration from or to rural areas should not only be looked at in the change in economic structure and implementation of technological novelties, but also in social structure and the improvement of public services; that is, the transition of youth from urban populations to rural populations with the gradual optimisation of the transportation and internet network. Therefore, there is synergy among the changes in economic structure, rural population, the rural–urban transformation ratio, and road density in controlling the structural characteristics of depopulation of rural areas. [42].

3.2. Results of the Interviews

While comparing all 22 interview transcripts and one additional qualitative research with the focus group of young people, but also using all the notes from the field visits, numerous aspects were discovered. About 70% of the interviewed farmers indicated that work on the farms is their secondary job, mainly being carried out on the weekends, while about 30% stated that it was their main employment. All the farmers cultivated vegetables and fruits, and some of them also kept bees for personal use. Overall, the number of livestock has strongly decreased in all the farms (for almost everyone) in the last five decades; nowadays, most farmers have zero to three cows, some have about 15–30 sheep and no one owns an ox, horse, or donkey.

Findings based on the rural household survey data and key informant interviews confirm the research hypothesis that the strengths of the studied region are high quality, well-preserved and fertile soil, and that there are good conditions for organic production. The farmers stated that the area has favourable climate for many types of agricultural production. Farmers have tradition in agricultural production practices and a sufficient work force would provide additional opportunities for employment. We recorded positive changes in production processes, e.g., adoption of new technologies and introduction of new international standards.

During the interviews, farmers stated that a large part of the agricultural products are from seasonal production and are non-competitive in price. This production is characterised by relatively high input prices that influence the final price of the products, with low levels of market sales. We noticed a lack of organization and cooperation in the production chain. Holdings are small and fragmented, with low levels of production per household unit. The farmers are with poor mechanization, but also with low levels of technology and specialization applied in production. Poor infrastructure (road network, water supply, and internet) characterised major parts of the rural areas of the studied region and there is a lack of storage capacity. We recorded an unfavourable age and social structure in the rural areas, with low levels of education and a lack of knowledge in farmers. In relation to the gender analysis, we concluded that male migration is an important factor that determines a women's role on farms. A significant weakness is poor connections of the farmers with the tourism sector.

From the communication with the interviewed farmers, and through further analysis, we concluded that there is an opportunity for increasing of the markets of organic production, with possible initiation of exports of competitive products (goat milk and cheese, lamb, and vegetables) as there is in general growing demand for high-quality products. Since local non-agricultural employment does not result in the prolonged absence of key household labours, we should achieve a better combination of resource-based and non-resource-based activities in rural household livelihood portfolios. Therefore, creating more non-agricultural employment opportunities within commuting distance from rural communities without causing environmental degradation can enhance the sustainability of agricultural production and natural resource use. Farmers are facing periodic risks due to fluctuations in economic conditions, but the responses to these risks are poorly understood. In particular, there is a need to better understand the management of risk in the farming systems [43]. Proposed non-agricultural employment opportunities could be a measure of diversification given the risks of traditional farming.

There is a space for strengthening agriculture activities through tourism and additional food demand. In this specific moment Montenegro is in the process of accession to the European Union, with the availability of state and EU support, particularly for rural development. That may increase technological development, as well as strengthening of the professional skills and institutions supporting agricultural development, which may end up involving the young work force in agricultural activity.

On the other hand, opening of the market will increase competitiveness, which may endanger major parts of commercial production that we have in the studied region only in traces. Another risk is the fact that while rural-to-urban labour migration and abandonment of farmland may facilitate forest transition and ecological recovery, abandoned lands may fail to rehabilitate naturally because they have been irreversibly transformed [34,44,45]. It is worth mentioning that few of the interviewed farmers mentioned land consolidation as an effective technique in land management [46]. This initiative

should be supported from the state level as that contributes to sustainable rural development. Policies encouraging ecosystem recovery on abandoned land can promote sustainable land use and reduce water, landslides, and soil erosion [47–51]. Meanwhile, it is of great importance to develop holistic policies and programs to enhance both rural people's socioeconomic welfare and rural environmental sustainability. Development interventions need to work with farmers to provide further options.

Agricultural productivity, the high urbanisation rate, the weakening status of the agricultural industry, and the low population in rural areas show that agricultural production is no longer the main way for farmers to earn a living. The "part-time farming" and "non-agricultural" production of farmers' livelihoods lead to their reduced dependence on agricultural production. Farmers are more inclined to "edge and corner land" and agricultural production-related land used for agricultural production within and around places where they live [45,52–54].

Working with the youth focus group we repeatedly came to a similar position as presented in communication with the farmers. A summary of the interviews with the youth living in the rural areas of Niksic is presented in the paper. Here we would like to highlight that young people are aware about the picturesque villages of their area and pointed out that the food they are producing is of exceptional quality and that the region is rich with medicinal herbs (teas, various medicinal herbs, forest fruits, blueberries, mushrooms, rosehip, and the like).

In their opinion the potential is in agro-eco tourism and health tourism development, but also in engaging in organic production. All young people unanimously highlighted the importance of the state investments in transport infrastructure (complained about gravel roads and poor-quality infrastructure), but also in water supply and telecommunications.

They are of the opinion that more young people are returning to the countryside now than before. They complain that there is a lack of playgrounds and sports field, but also about the problem of their mobility and poor internet coverage. All interviewed young people pointed out that the villages are empty as far as they are concerned. They highlighted the special threat of the loss of a young generation from the rural areas, after the disappearance of their fathers' generation. Few young respondents stated that climate changes may be a problem for this area in the future. We concluded together that young people have more difficulties to get married and to form a family in these rural areas. It is difficult for them to make a career since it often requires presence in large urban centres.

From the beginning of this century, a few farmers from the studied area have been providing good examples of the business initiatives in the rural areas of this part of the Balkans. Radivoje Miljanic from Podbozur, Javorka and Sreten Batricevic from Trubjela, as well as Boris Cipranic from Niksicka Zupa, all from Niksic Municipality, have initiated small family businesses with goat farming (see Figures 9–14).

Figure 9. Details from the Batricevic Farm.

Figure 10. Batricevic farm products on the market.

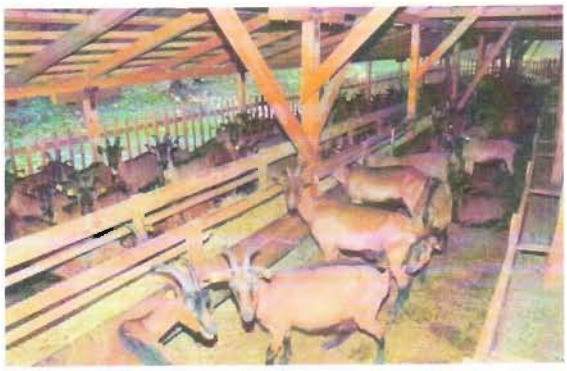

Figure 11. Details from the Miljanic Farm.

Figure 12. Miljanic farm products on the market.

Figure 13. Final Products (cheese, yogurt and "kajmak"—cream) from the Miljanic Farm, Podbozur, Niksic.

Figure 14. Products from the farms offered to the Prince of Wales and Camilla, Duchess of Cornwall.

Demographic trends. From 1948–1953, all the zones, the town, and the municipality experienced positive population growth, particularly in rural settlements. The largest growth index was recorded in the town of Niksic, indicating that rural-to-urban migration was significant during this period. However, this was offset by high rates of rural population growth. Of the zones in this period, the Greater Suburban zone had the lowest population growth index (Table 1). From 1953–1971, rural-to-urban migration increased due to the accelerated process of industrialisation; this is reflected in the movement of the town's population (the indices were high). There was a population decrease first in the Mountainous and Greater Suburban zones and later in the Suburban zone. The 1970s saw a stabilised decrease in birth rates (which were high after WWII to compensate for war losses). This first affected the urban area and the settlements closer to it and later other areas.

Table 1. Location of the studied villages from the Municipality of Niksic.

	Village	Latitude	Longitude	Shortest Distance	Driving Distance	Driving Distance	Position to Niksic
Suburban	Milocani	42°49′39.2″ N	18°54′11.1″ E	7.07 km	8.6 km	0 h 14 min	NW
	Ozrinici	42°45′04.7″ N	19°00′02.8″ E	4.57 km	5.7 km	0 h 09 min	SE
	Dragovolji	42°46′24.3″ N	19°02′37.7″ E	7.30 km	11.4 km	0 h 17 min	E
Greater Suburban	Sipacno	42°52′22.4″ N	18°56′45.4″ E	11.01 km	14.8 km	0 h 21 min	N
	Bogetici	42°40′55.3″ N	18°58′44.0″ E	11.28 km	14.7 km	0 h 19 min	S
	Carine	42°43′40.3″ N	18°36′16.0″ E	09.00 km	14.9 km	0 h 20 min	W
Mountainous	Grahovo	42°39′10.3″ N	18°40′08.0″ E	27.00 km	46.4 km	0 h 44 min	SW
	Nudo	42°40′18.7″ N	18°34′25.2″ E	33.00 km	60.0 km	1 h 05 min	SW
	Vilusi	42°43′38.4″ N	18°35′38.0″ E	30.00 km	35.6 km	0 h 35 min	W

The significant migration of young and middle-aged people from rural areas, particularly from the Mountainous zone, and the quickly declining birth rate resulted in a drastic reduction of the rural population. In 2011, there were only 6241 inhabitants in the Mountainous zone, which is 13,099 inhabitants or 2.1 times less than in 1953. The Greater Suburban zone lost 3418 inhabitants in the same period (1.1 times less than in 1953). It should be emphasised that these are only the immediate population losses; the indirect losses from these two zones are much higher (if one counts the population growth rate of the generations that moved out of these zones). The Suburban zone had a different population trend. From 1961–1971 and from 1981–1991 it had a declining population, but in the period 1991–2011 it had the highest population growth rate at the municipal level. During periods of declining population, migration to the town intensified. In the post-1991 period, which was characterised by a very difficult economic situation in the town and the entire municipality because most industrial enterprises had closed or drastically reduced the number of workers, the population that had migrated to town returned to the Suburban zone, which has the best conditions for agricultural production in the municipality. Number of inhabitants of the town and zones for the the period from 1948 to 2011 presented in the Figure 15 and the Table 2.

Table 2. Number of inhabitants of the town, zones, and municipality in the period 1948–2011.

Settlement	1948	1953	Index 53/48	1961	Index 61/53	1971	Index 71/61	1981	index 81/71	1991	Index 91/81	2003	Index 03/91	2011	Index 11/03	Index 11/48
Municipality	38,359	46,589	121.5	57,399	123.2	66,815	116.4	72,299	108.2	73,878	101.9	75,282	101.9	72,443	96.2	188.9
Nikšić	9435	14,868	157.6	26,518	178.4	40,107	151.2	50,399	125.7	55,649	110.4	58,212	104.6	56,970	97.9	603.8
Suburban	4881	5844	119.7	6025	103.1	5957	98.9	5964	100.1	5748	96.4	6039	105.1	6113	101.2	125.2
Greater Suburban	6206	6537	105.3	5869	89.8	4889	83.3	4197	85.8	3641	98.5	3588	98.5	3119	86.9	50.3
Mountainous	17,837	19,340	108.4	18,987	98.2	15,862	83.5	11,739	74.0	8840	84.2	7443	84.2	6241	83.9	35.0
Rural settlements	28,924	31,721	109.7	30,881	97.4	26,708	86.5	21,900	82.0	18,229	93.6	17,070	93.6	15,473	90.6	53.5

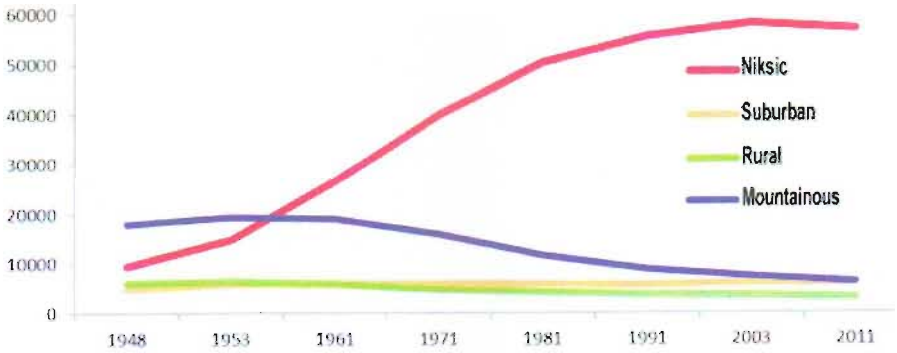

Figure 15. Number of inhabitants of the town and zones in the period 1948–2011.

Population movement affects population density, which increased in the municipality in the period 1948–2003 but decreased in the last inter-census period in the town as well. After the initial increase in population density, the Suburban zone basically retained the same density (with small fluctuations) of 39 people per km^2, which is the highest at the zone level. Since the 1960s, the Greater Suburban zone has been experiencing a constant decline in population density and is still halved today (Tables 2 and 3). In terms of surface area and number of settlements, the Mountain zone has always been characterised by low population density. Population density today is only four people per km^2.

Table 3. Population density trends of cities, zones, and municipalities in the period 1948–2011.

Settlement	1948	1953	1961	1971	1981	1991	2003	2011
Municipality	18.6	22.6	27.8	32.4	35.0	35.8	36.5	35.1
Nikšić	148.8	234.5	418.3	632.6	794.9	877.7	918.2	898.6
Suburban	32	38	39	39	39	37	39	40.8
Greater Suburban	17	19	20	17	15	13	13	10.5
Mountainous	11.5	12.4	12.2	10.2	7.6	5.7	4.8	4.0
Rural settlements	14.5	15.8	15.4	13.3	10.9	9.1	8.5	7.7

Source: MONSTAT—Directorate for Statistics [27–32].

The processes of industrialisation and urbanisation when there were poor traffic connections between the countryside and the town led to pronounced deagrarianisation and then to deruralisation. Bad roads and the poor quality of housing and communal facilities in the countryside also contributed to this. The old housing stock in the countryside was inadequate and had not been modernised. Investment was directed towards industry, and there was no investment in agriculture and rural municipalities. Deagrarianisation took place faster than the various industries could disperse some of their technologies into final production in the municipality, and the technological development of agriculture was even slower due to the karst characteristics of the terrain. Therefore, it was not possible to stop the outflow of young people from the countryside to the town, resulting in the depopulation of many villages in the municipality. Population density of the Niksic municipality (2011) and population indices relative to 1948 are presented on the Figure 16; and presentation of percentage of zones in the municipality's population in the period 1948–2011 on Figure 17.

In fact, with only a small elderly population remaining, some villages faced demographic extinction. In the period 1961–1981, the agricultural population decreased from 18,686 to 4338. This negative trend continued, and according to the 2003 census there were only 963 people registered as being actively engaged in agriculture.

The intensity of the rural exodus is best illustrated by the fact that in the period 1953–1981, the town of Niksic grew in population at such a rate that it was used as an example in demographic studies of Yugoslavia [31].

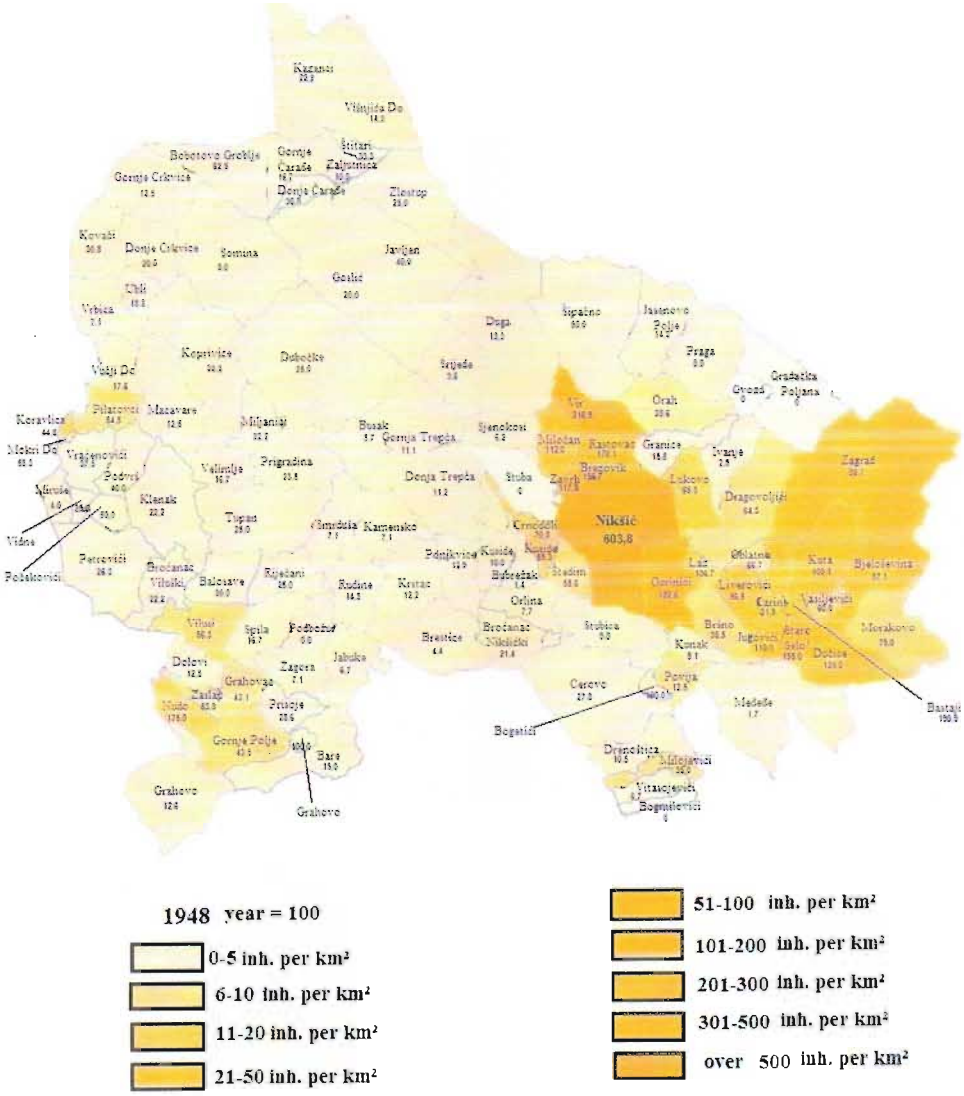

Figure 16. Population density of the Niksic municipality (2011), population indices relative to 1948.

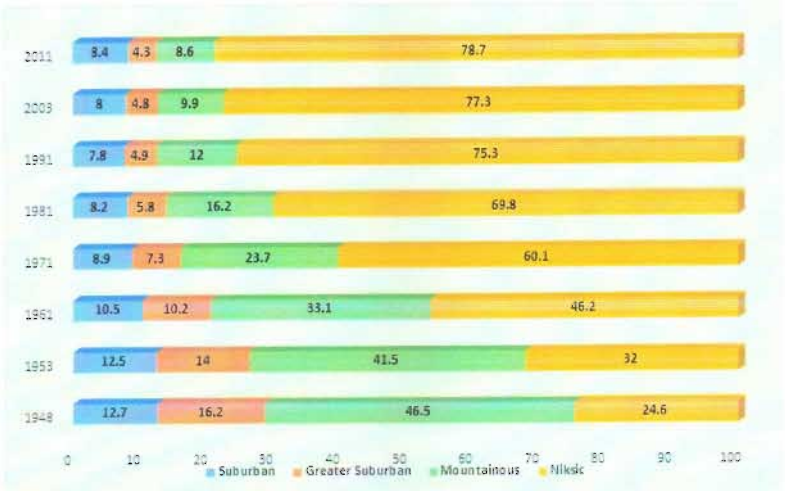

Figure 17. Percentage of zones in the municipality's population in the period 1948–2011.

The intensity of deagrarianisation and depopulation best illustrates the share of the rural population in the municipality's population at the beginning and end of the observed period. In 1948, 75.4% of the municipality's population was rural, and in 2011 the figure was only 21.3%. The highest depopulation was recorded in the Mountainous zone, which at the beginning of the observed period had 41.5% of the municipality's population compared to only 8.6% in 2011 (Figure 17).

Changes in the age structure of the zones' populations reflect the intensity of migration from the villages of the municipality. At the beginning of the observed period in 1961, all zones had a high proportion of young people (43.4%–45%), indicating high birth rates and positive population growth rates in rural settlements. The elderly population rate was significantly higher in all zones than in the town, indicating intense migration from the villages to the town (Table 4). The age indices ranged from 0.27 to 0.32 in the zones and were significantly higher in relation to the urban population (0.14). During this period, all zones were at the stage of demographic maturity; the Mountainous zone had the oldest population, which was about to enter demographic old age.

Table 4. Stages of demographic age of the zones, municipality, and town in 1961 and 2011.

Year	Settlement Zone	Younger than 20 (%)	Younger than 40 (%)	Up to 60 and Older (%)	Age [1] Index
1961	Suburban	45	74	12.4	0.27
	Greater Suburban	43.4	69.8	13	0.3
	Mountainous	43.7	69.9	13.9	0.32
	Town-Niksic	42	82.1	6.1	0.14
	Municipality	43.1	76	10.2	0.23
2011	Suburban	27.4	54.5	19.0	0.69
	Greater Suburban	24.7	50.4	24.8	1.01
	Mountainous	21.1	43.9	28.8	1.37
	Town-Niksic	26.1	54.8	17.8	0.68
	Municipality	25.7	53.6	19.1	0.74

[1] The age index represents the relationship between the old and young population. It is obtained by the formula Ss/Ms (old/young population). If the amount is greater than 0.40, then it is the category of the old population.

Due to the constant migration, the constant decline in birth rates and ultimately the negative population growth, 50 years later there was a significant change in the age structure of the population in the zones. The Suburban zone, which has the most favourable age structure, is in the demographic old age stage and is about to transition into deep demographic old age; it has the highest proportion of young people (27.4%) at the municipal level, 19% of the elderly population, and an age index of 0.69. The Greater Suburban zone is at the stage of deepest demographic old age, with an age index of 1.01, an elderly population of 24.8%, and a young population of 24.7%. The Mountainous zone, which has the worst age structure, has a young population of 21.1%, an elderly population of 28.8%, and an age index of 1.37. This zone has not only been in the stage of deepest demographic old age for a long time but is also threatened by demographic extinction in the coming period. The problem is more distinct if we consider the fact that this zone includes 76 of the municipality's 109 rural settlements and comprises 1554.8 km^2 of the total area of rural settlements of 2001.6 km^2). Therefore, unless urgent and extensive demographic and repopulation measures are implemented, a large part of the Municipality of Niksic will become uninhabited in the near future. Such measures would primarily be redistributive in nature, as there is almost no potential for population reproduction in the Mountainous zone.

The ageing process as a result of the declining birth rates peaked in the town in the 1970s. However, due to the large influx of younger middle-aged people from the surrounding areas in the productive 1970s and 1980s, it was not until the 1990s that this significantly affected the age structure of the town's population. This is the main reason that the town's population has the most favourable age structure in the municipality. In rural areas, birth rates have been falling for two reasons—the trend of declining

birth rates and the displacement of so many people of a reproductive age. The accelerated ageing of the population in the zones has mainly been due to the rural exodus, as mostly elderly households remained in the villages.

4. Conclusions

The area of the Municipality of Niksic is as an example of a karst Mediterranean area of the Balkan Peninsula with limited opportunities for agricultural development, which during industrialization had a period of economic growth and considerable prosperity. However, industrialization significantly changed the living conditions and the demographic development of Niksic. Niksic experienced unplanned and illegal construction; enormous pressure on infrastructure systems, social services overload, schools, and health institutions; and growing unemployment and environmental problems.

The economic power has declined significantly since the 1990s, leading to migration beyond the boundaries of the municipality and a population decline since the beginning of this century. The consequences reflected in the demographic trends are more far-reaching and are reflected as huge disproportions in the territorial distribution of the population.

The analysis we implemented during this research draws on the conclusions based on data collected through 22 household surveys and key informative interviews from 11 villages and an additional qualitative research, focus group interview with the young people. Farmers indicated that work on the farms is their secondary job, while for about 30% it is their main employment. Overall, the number of livestock has strongly decreased in all the farms. It was concluded that the strengths of the studied region are high quality, well-preserved and fertile soil with good conditions for organic production. Their production is seasonal and non-competitive in price with low levels of market sales. Holdings are small and fragmented with poor mechanization. Farmers complain of poor infrastructure. We recorded unfavourable age and social structure in rural areas. Male migration is an important factor that determines a women's role on farms. The weakness of the region is poor connections of the farmers with the tourism sector. We concluded that there is an opportunity for increasing of the markets of organic production, with possible initiation of exports of competitive products (goat milk and cheese, lamb, and vegetables) as there is in general growing demand for high-quality products. Non-agricultural employment opportunities could be a measure of diversification given the risks of traditional farming. There is space for strengthening agricultural activities through tourism and additional food demand. The "part-time farming" and "non-agricultural" production of farmers' livelihoods lead to their reduced dependence on agricultural production. Young people recognized the potential in agro-eco tourism and health tourism development, but also in engaging in organic production. They highlighted the special threat of the loss of a young generation from the rural areas, after the disappearance of their fathers' generation. It is difficult for them to make a career being at the farms since it often requires presence in large urban centres.

Well-established infrastructure contributes to a better quality of life and reduces depopulation process of the rural areas. We performed an accessibility analysis using the driving time needed for the population of a region to reach a city center. The density of the road network, G, for the total area of the Niksic Municipality is 0.10. Calculating the inputs for the service areas with 30-min time frames we concluded that this section is covering 35% or 718 km^2 of the total of territory of the Municipality (2065 km^2) and is with the total length of the road network of this section of 123 km. The density of the road network of the service areas with 30-min time frames, G, is 0.17, indicating that the road network is of low density for all the studied territories.

It was confirmed that there is enormous pressure on the city, particularly the inner city, and a large part of the municipality is very sparsely populated or uninhabited. Another significant consequence is the old age of the population in the two population zones in the town's hinterland. This will influence the decrease in the working population in these zones and the degree of economic activity, resulting in a greater burden on the active population. Such trends create a big problem, even in economically wealthier environments. In addition, mortality rates in these zones will continue to

grow at an accelerated pace, while population reproduction will be minimal, ultimately leading to complete depopulation.

Based on the analysed population characteristics of the rural area of the Municipality of Niksic, we proved the hypotheses that migration from the countryside to town has considerably affected the demographic development of the rural area; that intense migration from rural areas has led to changes in the population structure within those areas, especially in terms of age and gender; that depopulation in the rural areas has led to agricultural and economic decline; and that because of migration, an increasing number of villages have very few residents, most of whom are elderly.

The latest transformations of the economy after 1990 (when industry in the city was almost extinguished) indicate that the neglect of agriculture and the destruction of agricultural parcels are mistakes that will prove difficult to correct. The relationships among rural migration processes, household livelihoods, and rural environmental changes are influenced by the broader social and economic contexts at the national and regional levels.

Around the developed world, state authorities bear responsibilities to implement dependable and timely measures to revitalize the countryside; so, in the case of the Municipality of Niksic, it is the responsibility of state of Montenegro to stop the extinction of the villages. Today, revitalization of the countryside is only possible by bringing non-agricultural activities into the area centres and improving the quality of life in the villages, which would reduce unemployment in the city. Solid traffic infrastructure between individual settlements and their connection with the city is also necessary.

Between 2003 and 2011, the agricultural population increased by 1.2%. This gives hope because agriculture is now being recognized as a significant branch of the economy, and an ambience for changing the inherited negative perception of it is being created. Delivering agricultural products to the market and public goods for the society requires a better understanding of the socio-economic and policy factors that hinder or enhance the development of such systems by identifying the trends and drivers encouraging the involvement of farmers, actors in the value chain, consumers, educators, and policy makers. The positive effect of socio-economic factors in rural areas may gradually increase with societal and economic development. Social transformation, location conditions, traffic conditions, industrial income, and other socio-economic factors at the moment are affecting improvement in rural areas of the studied region. Farmers should now use the comparative advantage of unpolluted land and natural resources of rural settlements from this area. This resource can directly provide many ecosystem services for rural residents that are related to their well-being. Meanwhile, it is of great importance to develop holistic policies and programs to enhance both rural people's socioeconomic welfare and rural environmental sustainability.

It should be noted that the process of depopulation analysed here reveals a significant deficit in territorial cohesion that has wrought serious damage on mountain areas, true "loser areas", and victims of a genuine territorial crisis that includes and is evident in a demographic problem and territorial imbalance that has generated a process of population redistribution initiated in the middle of the twentieth century. Consequently, state authorities have to implement innovative and integrated actions in Strategic Territorial Planning that encompass multiple and diverse measures, as well as sectoral initiatives in order to advance towards the sustainable development of mountain rural spaces similar to the Niksic region, all over the country.

Depopulation of rural areas is a complex process that is causing serious eco–socio–economic damages, bringing dramatic losses to the long-term conservation of the local natural resources. These messages should be addressed to those governing rural environmental management and development policymaking, as well as aiding future research in the region.

Further similar research still needs to be implemented in depth to provide better data support for the large-scale regionalization related to the environmental renovation of rural human settlements, using the opportunity of the environmental performance of rural human settlements. For the upcoming studies it will be important to increase the understanding of the impacts of rural migration on household

livelihoods and consequent environmental changes, with special attention to the impacts of climate change on the studied area.

Supplementary Materials: The following are available online at http://www.mdpi.com/2071-1050/12/8/3328/s1. In this section authors presented as followings: 1—The interview at Milomir Musikic's family, Zupa Niksic, Bastaji Village, February 2020; 2—The interview at Bosko Draskovic's family, Grahovo, February 2020; 3—Summary of the Interviews with youth living in the rural areas of Niksic (2020)

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Visit to the Milomir Musikic's family, Zupa Niksic, Bastaji Village, February 2020

Figure 4. During the interview at Milomir Musikic's family, Zupa Niksic, Bastaji Village, February 2020 [Biljana Mickovic, Goran Skataric and Velibor Spalevic with the Milomir Musikic family]

Our host, Milomir Musikić, was born in 1939. He had three brothers and five sisters; two of the brothers and two of the sisters were educated. The two educated brothers moved from the village of Bastaje, one to Niksic and the other to Bosnia, while the third brother died in World War II. Only Milomir stayed to live in Bastaje.

He says, during the interview, that it was very difficult to live in the countryside then. His family had only two cows and five to six sheep after World War II. There was a lot of fertile land, but it was poorly sown, mostly with corn and barley. At the time, they didn't use agriculture machinery; they hoped the land by hand and used oxen for ploughing. Everyone was in the same material state with a similar standard of life. He also stated that they were much more satisfied than people who are living today. They struggled a lot not to be poor. They worked day and night for wages and usually got wheat for work [as payment in kind]. At that time, "mobe" [support in working with each other] was common where people helped each other to complete the work in the fields.

By contacting an industrial business in Niksic, he received a job opportunity to work in town. He accepted it but did not abandon his farm.

Milomar is married and has two sons, who are also both married. One son along with his wife and two daughters stayed with Milomir in the village of Bastaje, while the other son also worked for the ZIGMA company and left the village in order to look for a better life.

Milomir says that many people from Niksic's Zupa emigrated to Germany and Switzerland. Some of them were returning and constructing houses in Zupa, Podgorica [the capital] or elsewhere.

Two of Milomir's granddaughters, who are students, say that the internet has been available in Bastaje for more than 10 years. They believe that the village does not have bad conditions and that the nature there is beautiful, but that the problem is that it is far away from the city, and the social life is not so interesting.

They also say that the young people are usually going to the coast. Another granddaughter of Milomir took a job at the Iberostar Hotel in Herceg Novi [Coast of Montenegro]. She likes to come to Zupa to visit her parents and enjoy the countryside during the holidays.

Milovan, another relative, also said during the interview that the youth of Bastaje today are leaving more than staying. A neighbour Bezmarevic and cousin Musikic, a retired professor, say that once the school in Zupa had over a thousand pupils, and that today only about 360 students attend the school. They believe that with investments by the state in the village, there might be young people who would remain or even would return to work in their homeland.

A problem is that they cannot sell agricultural products because there are no lines in this region with refrigerated trucks for milk purchase, but also there is a lack of investment to modernise production [milking machines and coolers needed to keep the milk in good condition, that is in direct relation with the number of somatic cells and after with price of milk].

Zupa is a very rich region, and bauxite has been exported from Zupa for decades. However, the people who lived in Zupa didn't benefit from it; the profits went to the companies from Podgorica [the capital] and Niksic [the administrative centre]. Not only did they not see that benefit, but the trucks hauling bauxite have also destroyed the road, which is in very poor condition today.

On the end of the interview, on the question to add something that was missing in our communication, eighty-year-old Milutin stated that he moves seasonally with his livestock to a "katun" [cottage in the mountains] on Mount Lukavica, where he was from 18 May to 15 November 2019.

He says that Lukavica is a rich mountain with 360 springs and that the entire time he is staying with his flock no one except him comes up to the katun. We concluded together that this good practise from the centuries ago is a tradition that could be a good point for further development of agro-tourism and future development of this region. Further development of this point may contribute to the diversification of the activities overall, and for the rural development of this nice rural area in the Mountains of Montenegro. But there is a need to improve the entire infrastructure for tourism development in katuns. Only than tourist may enjoy than unique values of the rural areas and our beautiful mountains.

Visit to the Bosko Draskovic's family, Grahovo, February 2020

Figure 5. Biljana Mickovic during the interview at Draskovic's family, Grahovo, February 2020

Host Bosko Draskovic was born in 1930. He had four brothers and sisters. His oldest brother used to work in the police force and another brother was a blacksmith. Mr Draskovic has stayed in Grahovo, but until his thirties, he lived in the village of Tospude. They still have a house in good condition there, but the village no longer has any permanent residents.

Mr Bosko Draskovic also worked at the Ironworks in Niksic for several years, but always lived in Grahovo. He attended a beekeeping school in Croatia, and even today, he is a beekeeper. He started building a house in Grahovo in 1960; when it was destroyed by an earthquake, he finished a second house in 1970.

Mr Draskovic says that earlier in the countryside the living standard was poor. They used horses and donkeys to transport goods to the coast where exchanges took place. Cereals were harvested in the village and milled in the village of Zaslap where there was a water mill. The grain was then transported on horseback. The horses were borrowed from the neighbours to carry the grain, and they returned them with a single per diem, an agreement to work for the neighbour sometime afterward. This return in kind for the use of horses was usually with work when the day was longest [in June and July]. In Grahovo, they grow mostly corn and very little wheat. They only ate white bread when it was the celebration of a saint or for holidays.

The village of Grahovo was a waterless area until the construction and accumulation of Grahovo Lake. Previously, the villagers would wait all night long to retrieve water from the well [bunar]. Mr Draskovic reminded us that during 1917 a large number of peasants died of starvation. Now every house has drinking water. He says that people began to move out from the farms after the visit of President Tito of Yugoslavia to Niksic when the ironworks began to be built there. Then, a decision was made to remove all the goats from the farms of the villages. This was two biggest causes of people leaving Grahovo that it never recovered afterwards. He believes that every state that has a strong village is a strong country.

Mr. Draskovic stated during the interview that the conditions in the village today are great, that is just like in the city and even more beautiful. On the other hand, there are no young people in Grahovo, and that every year one house after another is closed. Each household in the village had about five to six members. Most of them moved to the Americas, the coastal regions of Montenegro, Trebinje [in the Republic of Srpska, Bosnia and Herzegovina] and Niksic [the administrative centre]. Some who went to America have also come back and constructed houses in Grahovo. There were also those who never returned.

There, they worked in mines where it was very difficult to work, fell ill and most of them died because of the hard conditions. This was also for them a strong contrast in working conditions as most of them previously were mainly engaged in cattle breeding.

During the interview, Mr Bosko Draskovic informed us that formerly the village of Grahovo had lighting, but it is missing today. They have Grahovo Lake, but also pay for drinking water. Grahovo had a bakery, sawmill, button maker, and raspberry packing operation. They also used technical water flows for irrigation. The state helps the farmers, but the youth are leaving and nobody returns. Certain areas of cultivated land have been rented to people who are not originally from Grahovo, for which they are paying 200 euros per hectare. Today, about 30 new homes have been built in Grahovo. These are the so-called "weekenders", and none are from Grahovo. They come in the summer and on weekends; they are not permanent residents. Today, there are about ten people in the village over 60 years of age who are single and live alone. The school in Grahovo has 24 students. In the past two years, the number of students has decreased from 35 to 24.

Mr Draskovic lives in Grahovo with his wife, son, daughter-in-law, and grandson. He has another son who lives and works in Trebinje. His son Brano, who stayed with his father in the countryside, is married and also has two sons. One son is studying at the Faculty of Maritime Studies in Kotor [on the coast of Montenegro]. The other lives with them because of health problems. Brano Draskovic is employed as a guard at a school in Grahovo. Today, they have three cows and cultivate vast areas of land. They have all the machines they need to assist them with their work. They manage to sell all their products along the coast. The only thing missing in the state system is that there is no organised intake of milk. A new road was constructed in 2010, but did not it improve the situation a lot, because there are fewer and fewer residents in Grahovo. The worst part is that the birth rate has dropped dramatically. Last year, there were only 15 babies born. Young people do not see the point in living here.

Summary of the Interviews with youth living in the rural areas of Niksic (2020)

STRENGTHS

It is nice to live in the countryside. Young people love the life in village because of its peaceful, healthy environment, clean air, water and nature. They value the general comfort that village provides and the enjoyment of greater socialization. The big advantage is that a large number of young people who currently reside in the city also have relatively comfortable family homes in the countryside. Usually, these are smaller cottages, electrified and with a water supply. There are numerous vantage points near the picturesque villages with stunning views of the attractive landscapes: views of high mountain peaks, walks along the banks of mountain rivers and lakes; beautiful areas for hiking, biking, walks through the forest and nature.

OPPORTUNITIES

There is a something in the mountains, nothing down in the town!

All interviewed young people pointed out that the food in the countryside is of exceptional quality, since it is healthy homemade food, and the area is also rich with medicinal herbs (teas, various medicinal herbs, forest fruits, blueberries, mushrooms, rosehip and the like). It is offering the possibility for agro-eco tourism, health tourism development and for sale of good natural products at the local market. A small number of young respondents indicated that engaging in organic production is an additional activity that could be a good chance for the financial sustainability of young married couples in the countryside. Some of them mentioned that it is also possible to provide production that could be considered for export. All young people unanimously stated that the chances of recovery in rural areas are in investments in transport infrastructure, but also in water supply and telecommunications. There is a high demand from the state for resolving the issue of lack of jobs, i.e. guaranteed cash-flow through the market of agricultural products. The great natural potential of this area is good opportunity for livestock or crop production. Several young people have pointed out that the preparation of wood for heating, as well as for any of its functions in processing (furniture, souvenirs) can be used as a source of family income. One of the respondents stated that the biggest potential is the fact that young people are always looking for more and better, and this could be a key for the success: providing a lot of stimulants to the young people to come and remain at the rural areas. Young people with potential can improve their life environment if the system provides them opportunities. They stated that more young people are returning to the countryside now than before.

WEAKNESSES

Frequently repeated weaknesses are: lack of playgrounds and sports field and, no bathing area, which would be very useful in hot summer days. There are no individual personal corners for young people at the households. Almost all of them stated as a weakness that there are no coffee bars or small clubs. Very few young respondents have their own vehicle, which greatly reduces their mobility and attending of cinema and theatres. Problem is also poor internet coverage, with lower network coverage than in the city. This is especially a problem in valleys, so young people are moving the routers at higher positions near the house. Similar problem is with mobile telephony coverage. The weakness is that just few families' reside per village and young people have a larger amount of work to do because of lack of workforce, and as a consequence less free time. Most respondents complained about gravel roads and poor quality infrastructure. Weakness is also a modest financial situation of parents who cannot provide enough for everything that would provide good comfort for living in the countryside. For this reason, young people at an early age have to start their own initiative, which ultimately shortens their childhood and a comfortable life under the parental roof. Most of them originated in urban areas, so they did not learn from a young age to do the complex jobs. Basic skills are lacking. This causes many young people not to see a chance for a better life in staying in the countryside, but from this situation they seek escape to study and later to migrate to the city. All interviewed young people pointed out that the villages are empty as far as they are concerned. There are usually only a few in the area, each with a distance of kilometer or more.

THREATS

Massive emigration from the rural areas, particularly of young people towards administrative centres, and abroad, especially to Western European countries. Special threat is the loss of a young generation from the rural areas, after the disappearance of their fathers' generation. There is a significant reduction of the number of skilled workers for work in rural areas. Few young respondents stated that climate changes may be also a risk to organize life in the countryside: fears that they may face the problems with shortage of drinking water, but also of water for crops for irrigation, which puts the farm at financial risk and puts the sustainability of their farms under question mark. Some young respondents pointed out that some springs and smaller watercourses in their areas have almost disappeared, which may pose a risk to those young people who decide to invest in agro-eco tourism. Poor work motivation may affect the quality of products and the level and quality of service in agro-eco tourism. The young people have more difficulties to get married and to form a family. It is difficult for them to make a career since it often require presence in large urban centers.

UNIVERZITET CRNE GORE

FILOZOFSKI FAKULTET NIKŠIĆ

STUDIJSKI PROGRAM ZA PEDAGOGIJU

POTVRDA

O predaji doktorske disertacije

Potvrđuje se da je MA Biljana Mićković predala doktorsku disertaciju pod nazivom „Savremene urbane i ruralne transformacije i upravljanje prostorom Opštine Nikšić od sredine XX do kraja prve decenije XXI vijeka“, dana 06.07.2020. godine na dalju proceduru.

Potvrda se izdaje u svrhu pregleda i ocjene doktorske disertacije.

U Nikšiću,

06.07.2020.godine

DEKAN

Prof. dr Goran Barović

Biografija sa bibliografijom

Dr . sc. Svetislav G. Popović,d.i.a.

Diplomirao je 1980. godine na Arhitektonskom fakultetu Univerziteta u Beogradu, smjer projektantski. Školske 1996/97 upisuje poslediplomske studije na Arhitektonskom fakultetu Univerziteta u Beogradu, smjer AOP (arhitektonska organizacija prostora). Magistarsku tezu pod naslovom "*Geneza nastanka i uticajni faktori razvoja Danilovgrada*" odbranio je 2003. godine. Doktorsku disertaciju pod naslovom "*Uticaj regulative na razvoj fizičke strukture Danilovgrada i okolnih naselja*", odbranio je na Arhitektonskom fakultetu Univerziteta u Beogradu 2010. godine.

Podaci o radnim mjestima i izborima u zvanja:

Nakon diplomiranja stekao je raznovrsna stručna iskustva i reference u sljedećim ustanovama:

-''OGP'', Opšte građevinsko preduzeće Titograd, Titograd, od sept. do decem. 1981.g.

- Republički zavod za urbanizam i projektovanje, Titograd, /1981-1989/, zadaci **odgovornog projektanta za arhitekturu i urbanizam, kao i rukovodilac biora AU-I.**

- Školske 1982-1983. god. radio honorarno kao **profesor** u G.Š.C. "Marko Radević", Titograd.

- Radna organizacija za prostorno planiranje i projektovanje "Centar", Titograd, kasnije "Arcus projekt" /1989-1991/. kao **tehnički direktor**.

- "Arcada Engineering", Beograd, 1991. god. kao **odgovorni projektant.**

- "Mocca Comerce-Project Engineering", Podgorica, /1992-1994/, kao **odgovorni projektant**

- "Project Engineering", Podgorica /1994-1998/, **direktor i odgovorni projektant.**

- "Republički zavod za urbanizam i projektovanje" a.d. Podgorica, **Generalni direktor** od 1998 do 2002.g.

-"Incoplan" d.o.o. Podgorica, **vodeći odgovorni projektant** od 2003.g.

- Ugovorom o radu na mjesto **asistenta** imenovan na Građevinskom fakultetu Univerziteta Crne Gore ugovor br: 96 od 30. 01. 2004. godine.

- Aktom Univerziteta Crne Gore br:01-6201 od 20.01.2005. godine imenovan za **člana Matične komisije** Odsjeka za arhitekturu Građevinskog fakulteta u Podgorici, kao i **zamjenik šefa Odsjeka.**

- Odluka o angažovanju za izvođenje nastave Univerziteta Crne Gore br.01-2245 od 30.09.2004.god.

- Odluka o izboru u zvanje **docent** Univerziteta Crne Gore izabran 26.10.2006. god. Br. Odluke: 01-3038, Od 2010. do 2012. godine obavlja poslove i zadatke **rukovodioca postdiplomskih studija** na Arhitektonskom fakultetu u Podgorici.

- Od 05.09.2014.god.**VD Dekana** Arhitektonskog fakulteta u Podgorici

- Dekan Arhitektonskog fakulteta u Podgorici od 05.12.2014.god.

- **Član Senata** Univerziteta Crne Gore od 28.04.2017.god.

- Odlluka o izboru u zvanje **vanredni profesor** Univerziteta Crne Gore izabran 08.12.2016. god.

Uža naučna odnosno umetnička oblast:

Urbanističko-arhitektonsko projektovanje

Aktivnosti u nastavi: / Teaching: ***(rukovodilac predmeta)***

Kao *vanredni profesor* izvodi nastavu na predmetima

Osnovne studije:

- Osnovi urbanizma

- Školski i predškolski objekti

- Sintezni projekat II

Specijalističke studije:

- Urbana obnova

-Sintezni projekat VI

-Istorija urbanizma Crne Gore

-Sintezni urbanistički projekat I

Magistarske studije:

- Urbana tehnika i kompozicija

- Izborni predmet 1

- Ruralna analiza i morfologija

Mentor je većeg broja studentskih dodiplomskih; specijalističkih i master radova

- *Gostujući profesor na inostranim univerzitetima*

-Lands cape architecture is the ecological state of Montenegro (Wydzial architekturz Politechnika Poznanska, http://office_dar@put.poznan.pl), Poljska, Ljetnji semestar stud. 2009/2010. god.

- Urbanistička kompozicija i uravnoteženi urbanizam, (Wydzial architekturz Politechnika Poznanska, http://office_dar@put.poznan.pl), Poljska, Zimski semestar stud. 2010/2011. god.

- Architektura miejsc duchowych w dialogu kultur, narodów i religii-ekumenizm w przestrzeni sacrum Supraśl – Wigry – Kowno, Polska, 24-26 czerwiec, 2011r. International Union of Architects UIA Work Programme "Spiritual Places".

-Savremena arhitektura, grupa projektantskih predmeta (Fakultet tehničkih nauka Kosovska Mitrovica, Univerzitet u Prištini, ljetnji semester 2012 i studijska godina 2012/2013.god. posdiplomske master studije. Učestvovao je u nekoliko studija, kao koordinator i autor. Kao autor , vodeći odgovorni urbanista – arhitekta odgovorni projektant radio je na većem broju idejnih i glavnih projekata velikog broja projekata iz čijeg bogatog opusa se izdvajaju:

- Prostorni plan Republike Crne Gore, član radnog tima 1984.god.
- Prostorno planska analiza, namjene površina, trase autoputa Đurmani-Tanki rt, Podgorica, Rukovodilac Studije Project Engineering, Podgorica, 1998.g.
- Nacionalni dispečerski centar Crne Gore, Kruševac-Podgorica 1989-g-
- Ocjena stanja i predlog organizacije pošta u okviru GUP-a i PP-o Podgorica, Podgorica,Vodeći planer, Montplan, 2000.g.
- Eksterijer i enterijer vinskog podruma „Waine Shop" Vranjina, Podgorica, 2006. g.
- "Waine Shop" Vranjina, Skadarsko jezero, Podgorica 2006.g.
- Objekat Engleske ambasade, Gorica " C ", Podgorica, 2006. g.
- Eksterijer i enterijer vinskog podruma „Šipčanik„ Tuzi Podgorica, 2006. g.
- Rekonstrukcije i revitalizacije starog objekta kasarne Šipčanik, Tuzi (za potrebe smještaja radnika) 13. Jul-Plantaže, Podgorica 2007. g.
- Urbanizacija, razvoj naselja i funkcija urbanih centara, sektorska studija za potrebe izrade PP Crne Gore (SS-AE), ključni ekspert. Univerzitet Crne Gore, Podgorica 2007. g.
- Prostorni plan Crne Gore, član sinteznog tima, Montenegroinžinjering, Podgorica, 2008. g.
- Stadion" Gorštak", Kolašin, 2008. god
- Rekonstrukcije i revitalizacije "Mauzoleja vladike Danila" Orlov krš, Cetinje, 2009. g.
- Saborni Hram Sv.Jovana Vladimira Bar (sa P.Ristić) 2009..
- Centralno gradsko jezgro "Centar Kolašina" Kolašin, 2008. g. (Izvedeno)
- Dvorski trg Cetinje, Cetinje, 2011.god.(Izvedeno)
- Rekonstrukcija I revitalizacija Njegoševe ulice Cetinje 2013.itd.(izvedeno).

Oblasti istraživanja:

Urbanističko arhitektonska

Autor je i koautor većeg broja radova, koji su objavljeni u međunarodnim i nacionalnim naučno-stručnim časopisima i prikazani na međunarodnim i domaćim naučno-stručnim skupovima.

Monografija

a.) Dio naučne monografije izdate od strane renomiranog međunarodnog izdavača

- Perović, S. **& Popović S .G.** (2016). Serbia and Montenegro (overview of tourism policies and development, trends, top 10 destinations countrywide, top 3 World Heritage Sites, National Tourism Office with URL in Further Readings). In : Lowry ,Linda(Ed.) . SAGE International Encyclopedia of Travel and Tourism. Thousand Oaks, CA: SAGE Publications. ISBN 9781483368948

b.) Autorska naučna monografija izdata kod nas (i u okruženju) čiji su izdavači nacionalne akademije nauka državni univerziteti

- **Popović S., "Danilovgrad arhitektonika simbolika prostora"** Zadužbina Andrejević, Beograd, novembar 2011. / monografija/ pobjednik na 30. konkursu. Recezenti: prof. dr Peter Gabrijelčić, prof. dr Milan Ribar prof.dr Eva Vaništa Lazarević , Beograd ,2011.g.

c.) Knjiga studijskog karaktera izdata kod nas

- Vuksanović D., **Popović S.**, "Arhitektonski atlas Crne Gore – Preporuke za građenje", 70 str., Ministarstvo z ekonomski razvoj Crne Gore, GTZ – Njemačka, tehnička saradnja, ISBN 978-9940-520-05-2, Podgorica, 2008.
- **Popović S.**, "Architectural heritage of the Skadar lake basin" , 87 str., Ministarstvo za ekonomski razvoj Crne Gore, Ministarstvo turizma i zaštite životne sredine, GTZ-German tehnical Cooperation, ISBN 978-9940-520-04-5, Podgorica, 2008. Recezent: prof.Aleksandar Keković

d.) Radovi objavljeni u časopisima koji se nalaze u međunarodnim bazama

- Perović S., **Popović S.**(2013). Reflections of Utopia and the Ideal City in the Development of Physical Structure of Nikšić- Aspect of Visual Perception. *World Academy of Science, Engineering And Technology*,iss.79, p 1247-1255, p ISSN 2010-376X, eISSN 2010-3778 (ISI,Thomson Reuters).
- Velibor Spalevic, Goran Barovic, Alenka Fikfak, Saja Kosanovic, Mladen Đurovic **& Svetislav G. Popovic:** Sediment Yield and Land Use Changes in the Northern Montenegrin Watersheds: Case Study of Seocki Potok of the Polimlje Region; (Journal of Environmental Protection and Ecology 17, No 3, 990–1002 (2016)Thomson Reuters).
- **Popović, S. G.**, Lipovac, N. Vlahović, S.(2016). Planning and Creating Place Identity for Podgorica as Observed Througth Historic Urban Planning. Prostor: a scholarly journal of architecture and urban planning, 24/1 (5 119- 129. ISSN 1330-0652(Thomson Reuters).

Aktivnosti u profesionalnim organizacijama:

- Sekretar predsjedništva ULUPUCG, od 1982. do 1985. g.
- Predsjednik predsjedništva ULUPUCG, od 1985. do 1989. g.
- Član predsjedništva SPID-YU / Saveza likovnih umjetnika primijenjenih umjetnosti i dizajnera Jugoslavije od 1986. do 1990. g.
- Član predsjedništva SACG, Savez arhitekata Crne Gore od 1988. do 1998.g.
- Počasni član predsjedništva Saveza urbanista Srbije od 1999. g.
- Član organizacionog odbora ''ACCEE'' Međunarodne konferencije arhitektonskog saveta centralne i istočne Evrope u Beogradu od 26-29. juna 2003. g.
- Član DAD/Društva arhitekata Danilovgrada/od 2003. g.
- Član''IKCG'' /Inžinjerske komore Crne Gore/ od 2000. g.
- Predsjednik Savjeta za urbanizam Opštine Danilovgrad, rješenje predsjednika opštine od 19.11.2002. god. broj: 01-1010/1

- Član Upravnog odbora ''IKCG'' /Inžinjerske komore Crne Gore/ od 2000. do 2004. g.
- Dopisni član "JINA" Jugoslovenske inžinjerske akademije, Beograd od 2005. god.
- Član DAB/Društva arhitekata Beograda/od 2009. g.
- Član SAS/Saveza arhitekata Srbije/od 2009. g.
- Redovni član Iinžinjerske akademije Crne Gore, Podgorica 2007. g.
- Član UAAM /Urbanističko arhitektonska asocijacija Crne Gore/ od 2011. g.
- Redovni član Inžinjerske akademije Srbije, Beograd 2010.g.
- Član UIA / International union of architects/, Varšava, Poljska 2010. g.

Nagrade i priznanja:

Dobitnik više nagrada na arhitektonskim konkursima, salonima urbanizma I arhitekture kako na na domaćoj i međunarodnoj sceni.

Selektovano izdvajamo dvije prestižne nagrade

- Dobitnik prestižne *nagrade "Mihailo Radovanović"* za višegodišnje stručno angažovanje i postignute rezultate na strukovnom i metodološkom
unapređenju prostornog i urbanističkog planiranja , Beograd, jun, 2005.god.

-*Nagrada "Emilijan Josimović"* za celokupno životno djelo kojim je ostvaren zapažen doprinos stručnom, naučnom i praktičnom unapređenju prostornog i
urbanističkog planiranja, Beograd, jun 2007.

Univerzitet Crne Gore

University of Montenegro

03-3824
08.12.16

Crna Gora
UNIVERZITET CRNE GORE
ARHITEKTONSKI FAKULTET
22.12.2016
01-1608/16

Na osnovu člana 72 stav 2 Zakona o visokom obrazovanju („Službeni list Crne Gore" br. 44/14, 47/15,40/16) i člana 32 stav 1 tačka 9 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore na sjednici održanoj 08.decembra 2016.godine, donio je

O D L U K U
O IZBORU U ZVANJE

Dr Svetislav G. Popović bira se u akademsko zvanje **vanredni profesor Univerziteta Crne Gore za** oblast **Projektovanje i Urbanističko planiranje na Arhitektonskom fakultetu,** na period od pet godina.

R E K T O R

Prof. Radmila Vojvodić

Prof.dr Goran Barović

Biografija sa bibliografijom

Rodjen 15.07.1964. godine u Nikšiću gdje je završio osnovnu i srednju školu. Diplomirao na Nastavničkom fakultetu u Nikšiću, smjer Istorija i geografija, na Geografskom fakultetu Univerziteta u Beogradu magistrirao na smjeru kartografija, a na Departmanu za Geografiju, Univerziteta u NovomSadu odbranio je doktorsku disertaciju čime je stekao naučni stepen doktora geografskih nauka.

Kao student objavio je svoj prvi rad na kongresu Saveza Speleologa Jugoslavije, (Sarajevo,1987). Od 1991. godine zaposlen na Filozofskom fakultetu, kao asistent-pripravnik, asistent i saradnik u nastavi i nastavnik na Odsjeku za Istoriju i Geografiju, a zatim i Studijskom programu za Geografiju na predmetima: Astronomska geografija, Kartografija, Opšta kartografija, Tematska kartografija, Matematička geografija i Speleologija. Do sada je objavio više od stopedeset naučnih i stručnih radova. Članstvo u tijelima i organizacijama: Član je Odbora CANU za geologiju igeografiju od 1996, Član je „Srpskog geografskog društva" od 1987. godine, bio je Sekretar Speleološkog društva Crne Gore, 1984-1990. godine, obavljao je funkciju predsjednika Saveza speleoloških organizacija Jugoslavije, 1995-2003. Godine; Predsjednik je „Speleološkog društva Nikšić" od 2002. godine; Predsjednik borda direktora Asiocijacije speleoloških društava Crne Gore, od 2006. Godine; Bio je stručni saradnik i konsultant: National geographic yunior, od 2005. godine, NVO-a Gradjanski forum, koordinator za oblast zaštite životne sredine, RTVCG – stručni saradnik u obrazovnom programu; Član je Hrvatskog kartografskog društva od 2012. Godnine; Bio je član UO Planinarskog saveza Crne Gore (2014-2018); Član je Savjeta Prirodnjačkog muzeja Crne Gore (2016); Bio je član ili je i dalje član više komisija i radnih grupa u Ministarstvu održivog razvoja i turizma, Agencije za zaštitu životne sredine, SO Nikšić, Uprave za kadrove; Bio je član Nacionalnog savjeta za obrazovanje (2015). Obavljao je funkciju prodekana za nastavu Filozofskog fakulteta u Nikšiću u periodu 2012-2014. godine, a funkciju Dekana Filozofskog fakulteta u Nikšiću od 2014. do 2020. godine, član je Senata UCG od 2015. godine. Predjsednik je Crnogorskog geografskog društva od 2019. godine, Oženjen je i otac troje đece.

Bibliografija:

Dio naučne monografije izdate od strane renomiranog međunarodnog izdavača

1. **Barovic G.,** Spalevic V., Pešic V., Vujacic D., (2018) The Physical and Geographical Characteristics of the Lake Skadar Basin, The Skadar/Shkodra Lake Environment, ISBN 978-3-319-99249-5, Springer Nature, Switzerland AG.
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O D L U K U
O IZBORU U ZVANJE

Dr GORAN BAROVIĆ bira se u akademsko zvanje **vanredni profesor Univerziteta Crne Gore** za predmete: Opšta kartografija, Matematička geografija i Tematska kartografija, na studijskom programu Geografija na Filozofskom fakultetu, na period od pet godina.

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Rođena sam 13. 11. 1962. godine u Velimlju, opština Nikšić, Crna Gora.Osnovnu školu završila sam 1977. godine u Straševini, a srednju 1981. godine u Nikšiću. Godine 1982. upisala sam se na Odsjek za istoriju i geografiju na Nastavničkom fakultetu u Nikšiću. Diplomirala sam novembra 1986. godine sa prosječnom ocjenom 9,18 i ocjenom na diplomskom radu 9.

Poslijediplomske studije iz geografije stanovništva i naselja upisala sam na Odseku za geografiju PMF-a u Beogradu 1987. godine. Naziv magistra geografskih nauka stekla sam odbranivši magistarski rad » Dnevne migracije radne snage Nikšića« na Geografskom fakultetu – Odsjek za stanovništvo i naselja u Beogradu 1992. godine. Na istom fakultetu doktorirala sam 2007. godine na temu »Promjene struktura stanovništva opštine Nikšić u drugoj polovini XX vijeka«.

Nastavni i istraživački rad započela sam kao asistent pripravnik na Odsjeku za istoriju i geografiju Filozofskog fakulteta u Nikšiću. Juna 2008.g. – Bilten br. 230 (5. maj 2008. .g) Univerziteta Crne Gore izabrana sam u zvanje docenta na Studijskom programu za geografiju Filozofskog fakulteta u Nikšiću za predmete: Demogeografija, Geografija naselja, Industrijska i saobraćajna geografija i Pomorska geografija. Reizabrana sam u zvanje docenta oktobra 2014. godine Bilten br. 331 (3. oktobar 2014. g).

Angažovana sam kao saradnik iz oblasti demografije prilikom izrade prostornih planova: Studije lokacije lokacije za partiju X sektor 34 (Luštica) 2008; Elaborata baze podataka za SPU na životnu sredinu za DPP za HE na Morači (oblast demografije) 2009, PPPN Bjelasica – Komovi 2010, Detaljnog prostornog plana za koridor dalekovoda 400 kV sa optičkim kablom od Crnogorskog primorja do Pljevalja i podmorski kabl 500 kV sa optičkim kablom Italija – Crna Gora sa Strateškom procjenom uticaja na životnu sredinu 2011(oblast demografije); PPPN NP „Lovćen“ 2011, PPPN Obalno područje Crne Gore i PUP Nikšić. Takođe sam saradnik iz oblasti demografije na izradi PPCG do 2040. godine.

Bila sam član Revizione komisije za izradu Prostornog plana Republike Crne Gore do 2020. godine, za oblast demografije; i Revizione komisije za Studijsku osnovu i izradu PUP-a Podgorica. Angažovana sam kao autor testova za državno takmičenje iz geografije (koje organizuje Ispitni centar) od 2009. godine. Recenzent sam za oblast Društvene geografije u »Glasniku« Geografskog instituta Jovan Cvijić (pri SANU). Član sam Upravnog odbora CGD (Crnogorskog geografskog društva) i rukovodilac Studijskog programa za geografiju na Filozofskom fakultetu u Nikšiću.

Prof.dr Dragica Mijanović

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BIOGRAFIJA

Velibor Spalević je rođen 1. jula 1970. godine u Ivangradu (Berane), Crna Gora, gdje je kao nosilac diplome »Luča« završio osnovnu školu i Beransku gimnaziju.

Diplomirao je juna 1995. na Poljoprivednom fakultetu Univerziteta u Beogradu, odsjek za melioracije zemljišta.

Postdiplomske studije upisao je 1995. godine na Poljoprivrednom fakultetu Univerziteta u Beogradu, a tezu pod naslovom »Primjena računarsko-grafičikh metoda u proučavanju oticanja i intenziteta erozije zemljišta u Beranskoj kotlini« odbranio aprila 1999. godine.

Doktorsku disertaciju iz oblasti nauka o zemljištu pod naslovom »Uticaj načina korišćenja zemljišta na oticanje i intenzitet erozije zemljišta u Polimlju« odbranio je jula 2011. godine na Poljoprivrednom fakultetu Univerziteta u Beogradu, te na taj način stekao zvanje doktora nauka.

U više navrata (34) boravio je na kraćim i dužim stručnim usavršavanjima u inostranstvu iz oblasti nauka o zemljištu, geoinformatike, menadžmenta i zaštite životne srednine, projektnog menadžmenta, među kojima su najvažniji:

- decembar 2017: "Cours sur les bassins versants", Béni Mellal, Maroko;
- maj 2015: "Research design: A focus on DELPHI method and Social Network Analysis", Slovenija;
- april 2013: "Water footprint application for water resources management in agriculture" Italija;
- mart 2013: "Watershed Management and Soil and Water Conservation", Universität für Bodenkultur (BOKU), Austrija;
- novembar 2010: "Combating Desertification in Arid and Semi-Arid Zones", Izrael;
- maj 2010: "Certified Project Management", Evropska komisija, Luksemburg;
- oktobar 2005: FAO "Combating Land Degradation", Italija;
- maj 2005: "Rural development", Brisel, EU;
- avgust-oktobar 2004: "Young Scientists Program", Cornell University, USA, obuka pod mentorstvom prof. dr Harold van Es-a, predsjednika Društva za proučavanje zemljišta Amerike (President of the Soil Science Society of America);
- februar-mart 2001: "Watershed Management and Soil and Water Conservation", Izrael;
- Brojne druge obuke organizovane od strane Evropske komisije (2001-2010) u Belgiji, Grčkoj, Luksemburgu, Italiji, Iranu, Izraelu, Sjedinjenim Američkim Državama, Srbiji, Makedoniji, Hrvatskoj, Azerbejdžanu, Bosni i Hercegovini na teme: Watershed Management, Cross-cutting issues; Environmental Mainstreaming; Selection/Interviewing Techniques; Training on Anti-corruption policy; Framework Contract Training; Gender Equality; Media Techniques; Project Cycle Management, Evaluation and Monitoring.

PODACI O RADNIM MJESTIMA I IZBORIMA U ZVANJA

Radni odnos zasnovao septembra 1995. godine u administraciji lokalne uprave Opštine Berane.

Na predlog tadašnjeg Sektora za nauku Crne Gore, novembra 1995, prešao je na Biotehnički institut Univerziteta Crne Gore, gdje je 1999. izabran u zvanje viši istraživač.

Od jula 2001. radi kao pomoćnik šefa kancelarije Evropske agencije za rekonstrukciju (EAR) i senior menadžer Evropske agencije za rekonstrukciju (EAR), rukovodi projektima Evropske komisije, implementiranih u Crnoj Gori, dio projekata i u Srbiji. Septembra 2008. godine prelazi u Delegaciju Evropske komisije, gdje je zadržao isti portfolio kao i na prethodnoj poziciji. Do danas rukovodio sa 105 međunarodnih projekata finansiranih od strane EU (2001–2010; 2013–2015), sa godišnjim fondom od 3 do 18 miliona evra.

U periodu 2010–2013. da bi završio doktorski rad, vraća se na Univerzitet Crne Gore i uključuje se na projekte Biotehničkog fakulteta, radeći pri tom ekspertize iz oblasti nauke o zemljištu; uporedo radeći kao jedan od eksperata na FP7 projektu „AgriSciMont"; te kao jedan od BTF istraživača na AMF IPA Adriatic projektu Evropske komisije; zatim kao međunarodni ekspert na SWG/GIZ projektu „Jačanje regionalne saradnje upravljanja vodnim resursima u slivovima jugoistočne Evrope".

Po završetku doktorata (2011.), na predlog Poljoprivrednog fakulteta Univerziteta u Beogradu, odlukom Komisije za sticanje naučnih zvanja Ministarstva prosvete, nauke i tehnološkog razvoja Republike Srbije, stekao je naučno zvanje naučni saradnik za oblast melioracija zemljišta (aprila 2014.).

U periodu 2013–2014., ponovo radi u Delegaciji EU kao menadžer na projektima za oblast životne sredine, energetike i klimatskih promjena.

Od septembra 2014. do oktobra 2015. godine radi kao vodeći istraživač na Institutu za šumarstvo Crne Gore, a uporedo sa tim je bio i predsjednik borda direktora istog Instituta (2014–2016.). Paralelno sa redovnim aktivnostima na Institutu, kao međunarodni ekspert angažovan je na projektu iz oblasti erozije zemljišta finasiranom od strane EU: Preparation of the main design for rehabilitation of the landslide on road embankment at border crossing point in Dobrakovo in Montenegro.

Od februara 2016. godine pa do prelaska na Univerzite Crne Gore (2018) direktor je tima Međunarodnog fonda za razvoj poljoprivrede u Crnoj Gori (International Fund for Agricultural Development - IFAD, sjedište u Rimu), koji se bavi programom uspostavljanja klastera i transformacije ruralnih područja (Rural Clustering and Transformation Project - RCTP), vrjednog 13.6 miliona dolara (2017–2021), fokusirajući se na pitanja razvoja poljoprivrede planinskog područja Crne Gore, ekonomskog i ruralnog razvoja, analizu ruralne politike, u kontekstu specifičnih lokalnih prilika.

Od januara 2018. godine stalno je zaposlen kao predavač (docent) na Odsjeku za geografiju Filozofskog fakulteta Univerziteta Crne Gore. U periodu 2016–2017, 2015–2016. bio angažovan kao gostujući profesor na Odsjeku za geografiju Filozofskog fakulteta UCG (predmeti: Geografija zemljišta, Biogeografija, Geoinformatika, Pejzaži u geografskoj sredini, Menadžment u životnoj sredini); prethodno, 2013–2014, kao saradnik asistirao i na Biotehničkom fakultetu Univerziteta Crne Gore.

Kao mentor do sada je izveo nekoliko kandidata na doktorskim, magistarskim i osnovnim studijama u zemlji i inostranstvu:

- Mentor (Mlađen Jovanović, Velibor Spalević) doktorantu Dušku Vujačiću na doktorskim studijama Univerziteta u Novom Sadu, oblast geonauka: Problematika erozije zemljišta u 30 slivova Crne Gore, Srbije i Irana.
- Kopromoter (komentor) terenskih istraživanja studentima geografije Gent University (Belgija): Klaas ANNYS, (PhD research, MSc thesis), Jeroen VANDENBRANDEN (MSc thesis); Annelies KERCKHOF (MSc thesis); Tom LENAERTS (MSc thesis).

- Kopromoter (komentor) istraživanja Master studentu Federal University of Lavras, Department of Soil Science, Lavras (Brazil): Pedro VELOSO GOMES BATISTA.
- Ko-supervisor (komentor) studentima koji po modelima: Surface and Distance measuring (Spalević, 1999), River Basin (Spalević, 1999), IntErO (Spalević, 2011) izvode naučna istraživanja u Brazilu: MSc student André Silva Tavares; MSc student Augusto César Ferreira Guiçardi; MSc student Natanael Rodolfo Ribeiro Sakuno, Ministério da Educação, Universidade Federal de Alfenas / UNIFAL-MG, Programa de Pós-graduação – Ciências Ambientais, Brazil.
- Mentor na osnovnim studijama na Univerzitetu Crne Gore iz oblasti nauke o zemljištu kndidatima Nikoli Vujačiću, Kseniji Lukovac, Violeti Gruban, Ivani Popović (2018), Marku Čabarkapi (2019).

Sve teme su obrađivale problematiku vezano za Crnu Goru i Srbiju ili su korišćeni modeli koji su razvijeni u Crnoj Gori i Srbiji: WIntErO (2019); IntErO (2011); River basin (1999); Surface & distance (1999). IntErO model je od strane Društva za vodoprivredne melioracije Irana (1200 članova) u zvaničnoj upotrebi u ovoj zemlji (2018) kao jedan od zvaničnih modela za proračun intenziteta erozije i oticaj iz slivova. River basin model je od strane Kompanije za primenjena istraživanja i permanentno obrazovanje u poljoprivredi - FZNH Fakultet za zemjodelski nauki i hrana u zvaničnoj upotrebi u ovoj zemlji (2019) kao jedan od zvaničnih modela za proračun intenziteta erozije i oticaj iz slivova.

Septembra 2017. godine sa timom dobio dvije nagrade na međunarodnoj konferenciji organizovanoj od strane Balkanske asocijacije za životnu sredinu (1st prize for Oral presentation / The Best Performance and Content in the presentation session, Balkan Environmental Association (B.En.A.), Romania, 2017; 1st prize for Poster presentation / The Best Performance and Content in the poster presentation session, Balkan Environmental Association (B.En.A.), Romania, 2017).

Septembra 2018. godine dobio nagradu za najbolju prezentaciju na međunarodnoj Eko konferenciji u Novom Sadu (The best paper presentation award, 22th International Eco-Conference® 10th Eco-Conference on Safe Food Novi Sad, Serbia, 26th - 28th, September 2018, Serbia, 2018).

U 2018, kao predsjednik Naučnog i ko-predjednik Organizacionog odbora, pokrenuo inicijativu za uspostavljanje Međunarodne konferencija Green Room Sessions koja ima za cilj da bude platforma međunarodne naučne diskusije o geonaukama i poljoprivredi uopšte, poljoprivredi vezano sa pitanjima ekonomije i ekologije, nauci o tehnologiji hrane i prehrane, ruralnim razvojem, životnom sredinom i šumarstvom. Međunarodnom konferencijom koja okuplja i povezuje nauku, istraživanje, industriju, društvene koncepte i prakse.

Decembra 2018. dobio Nagradu za doprinos u razvoju naučno-istraživačkog, stručnog i umjetničkog rada na Univerzitetu Crne Gore za rezultate ostvarene tokom 2018. godine.

Od 2019. godine član Odbora za poljoprivredu Crnogorske akedemije nauka i umjetnosti (CANU).

OSTALE AKTIVNOSTI

U 2018. godini, poslije uspješnog publikovanja serije radova iz oblasti nauke o zemljištu i uticaja načina korišćenja na degradaciju zemljišta, izabran za jednog od urednika međunarodnog časopisa (ISI) Notulae Botanicae Horti Agrobotanici Cluj-Napoca.

U 2016. godini bio je jedan od osnivača i urednik (Managing Editor) časopis »AGROFOR International Journal« (www.agrofor.rs.ba). Bio glavni i odgovorni urednik časopisa »Poljoprivreda i šumarstvo« (www.af.ac.me): 51-59, 2005–2013, kourednik za sveske 60-61 (2014–2015); ranije (periodu 1995–2001) kao generalni sekretar istog časopisa asistirao akademiku Miloradu Mijuškoviću na uređivanju Časopisa, obavljao poslove tehničkog urednika.

Trenutno aktivno učestvuje u radu sledećih međunarodnih časopisa: "Eurasian Journal of Soil Science" (ISSN: 2147-4249) Scientific Editor; "Spanish Journal of Rural Development" (ISSN: 2171-1216), Scientific Committee; "Malaysian Journal of Soil Science" (ISSN: 1394-7990), Editorial board

Member; „Пермский аграрный вестник" (ISSN 2307 - 2873), Editorial board Member; "Ecologica Montenegrina" (ISSN: 2336-9744), The Bulletin of University of Agricultural Sciences and Veterinary Medicine Cluj-Napoca. Horticulture (Print ISSN 1843-5254; Electronic ISSN 1843-5394); Editorial board Member; "Educa" (ISSN: 2303-7342), Editorial board Member, "Tokovi".

Registrovani je recenzent sledećih međunarodnih časopisa: "Sustainability" (ISSN 2071-1050); "International Journal of Environmental Research and Public Health — Open Access Journal" (ISSN 1660-4601; ISSN 1661-7827); "Water" (ISSN 2073-4441); "Environments" (ISSN 2076-3298) "Science of the Total Environment" (ISSN ISSN: 0048-9697); "International Journal of Environmental Research and Public Health" (ISSN 1660-4601); "Ecological Indicators" (ISSN: 1470-160X - Print, 1872-7034 - Electronic); "Hydrological Sciences Journal-Journal des Sciences Hydrologiques" (ISSN: 0262-6667); "Environmental Engineering and Management Journal" (ISSN: 1582-9596), "Journal of Environmental Management" (ISSN: 0301-4797), "Environments — Open Access Environmental Conservation and Technology Journal" (ISSN: 2076-3298) "Water" (ISSN 2073-4441) "Global and Planetary Change" (ISSN: 0921-8181) "Journal of Water and Land Development" (ISSN 1429-7426; e-ISSN 2083-4535); "Land Degradation & Development" (Online ISSN: 1099-145X); "International Journal of Sediment Research", (ISSN: 1001-6279); "CATENA" (0341-8162); "Journal of African Earth Sciences" (ISSN: 1464-343X); "ECOPERSIA" (ISSN: 2322-2700); "Malaysian Journal of Soil Science" (ISSN: 1394-7990); "Natural Hazards" (ISSN: 0921-030X, print version; ISSN: 1573-0840, electronic version); "Notulae Botanicae Horti Agrobotanici Cluj-Napoca" (Print ISSN 0255-965X; Electronic ISSN 1842-4309); "Agriculture and Forestry" (ISSN 0554-5579 printed, ISSN 1800-9492 Online), "Forest Review" (ISSN: 0585-9069, E-ISSN 1857-9507). Studijski recenzent: LE STUDIUM Loire Valley Institute for Advanced Studies.

Član organizacionih odbora sledećih međunarodnih konferencija:

- Green Room Sessions međunarodne GEA (Geo Eko-Eko Agro) konferencija, Podgorica;
- 2nd International Congress Urban Environment Health, 16-20 April 2018, Cappadocia;
- The 6th Edition of the international congress "Water, Waste and Environment" in December 2017 in Béni Mellal, Morocco;
- International conference "40 years of horticulture education in Cluj-Napoca, 1977-2017", Faculty of Horticulture at the University of Agricultural Sciences and Veterinary, Medicine Cluj-Napoca, Romania, 2017;
- The 3rd World Conference of World Association of Soil and Water Conservation, 2016;
- The 7th, 6th, 5th, 4th International Scientific Agriculture Symposium "Agrosym", 2018, 2016, 2015, 2014. & 2013;
- International Eco-Conference® and Eco-Conference on Safe Food, 2019, 2018, 2017, 2016, 2015, 2014;
- The 9th Congress of the Soil Science Society of Bosnia and Herzegovina, 2015;
- The 2nd International Symposium for Agriculture and Food, Macedonia, 2015;
- The International Conference on Soil, Albania, 2015;
- The International conf.: Challenges in modern agricultural production, Macedonia, 2014;
- The First International Symposium on Agricultural Engineering, 2013;
- Intern. symposium for agriculture and food, "SS. Cyril and Methodius", Macedonia, 2012;
- The Role of Research in Sustainable Development of Agriculture and Rural Areas, Montenegro, 2012;
- Convener of the Special session: Modelling of Soil Erosion of the 5th EUROSOIL International Congress, Turkey, 2016;
- Generalne skupštine geonauka Evrope (European Geosciences Union – EGU General Assembly, Committee Member, Subdivision: Soil, Environment and Ecosystem Interactions, 2015, 2016, 2017, 2018, 2019.

Član je Svetske organizacije konzervacije zemljišta i voda (World Association for Soil and Water Conservation, WASWAC); Udruženja geonauka Evropre (European Geosciences Union, EGU);

Međunarodnog uruženja nauke o zemljištu (International Union of Soil Sciences, IUSS); Balkanske asocijacije za životnu sredinu (Balkan Environmental Association); Nacionalnog udruženja za vodoprivredu Irana (Watershed Management Society of Iran); Počasni član društva za hortikulturu i šumarstvo Transilvanije; Makedonskog nacionalnog komiteta za navodnjavanje i odvodnjavanje (The Macedonian National Committee on Irrigation and Drainage); Društva za proučavanje zemljišta Srbije; Crnogorskog geografskog društva.
Istraživač sa preko 270 naučnih rezultata publikovanih u sledećim časopisima: "Land Degradation & Development", "SpringerPlus", "Austrian Journal of Forest Science", "Archives of Biological Sciences", "Notulae Botanicae Horti Agrobotanici Cluj-Napoca", "Malaysian Journal of Soil Science", "Allgemeine Forst Zeitschrift (AFZ) der Wald", "Humid Substances in Ecosystems", "Journal of Forestry Faculty of the Kastamonu University", "Acta Agriculturae Serbica", "Acta biologica Iugoslavica", "Archive of Agricultural Sciences", "Natura Montenegrina", "Medical essays", "Agriculture and Forestry", "Forestry".

Do sada održao predavanja po pozivu, plenarna i kao uvodničar (Key note Speaker / Preliminary Speaker) na sledećim međunarodnim konferencijama:
- 2018 (17th) 2017 16th International Symposium" Prospects for the 3rd Millennium Agriculture", Rumunija (Key note speaker);
- 2017, Preliminary Speaker, Congress "Water, Waste and Environment" 12-14 December 2017, Béni Mellal, Morocco;
- 2017, Extra programme: Cours sur les bassins versants, Par Velibor Spalević, Congress "Water, Waste and Environment" 12-14 December 2017, Béni Mellal, Morocco;
- 2017, Sustainable Ecological-Economic modelling at the Watershed scale in the Balkan Watersheds (Key note speaker). The 8th International Agriculture Symposium "AgroSym 2017", Jahorina, 5-8 October 2017, Bosnia and Herzegovina;
- 2017, "40 Years of Horticulture Education" special event Faculty of horticulture Cluj Napoca, 26-27 septembar 2017 (Key note speaker);
- 2017, Velibor Spalević (Key note Speaker), Goran Barović, Duško Vujačić, Augusto César Ferreira Guiçardi, Ronaldo Luiz Mincato, Paolo Billi, Paul Sestras, Goran Škatarić: The Assessment of the Soil Erosion and Runoff in the Sekularska River Catchment, Northeast Montenegro. 14th International Congress of Soil Science Society of Serbia: "Solutions and Projections for Sustainable Soil Management", Soil Science Society of Serbia and Faculty of Agriculture Novi Sad, 25-28th September 2017, Novi Sad, Serbia.
- 2013, Velibor Spalević (Key note speaker), Jan Nyssen, Milić Čurović, Tom Lenaerts, Annelies Kerckhof, Klaas Annys, Jeroen Van den Branden, Amaury Frankl: The impact of land use on soil erosion in the river basin Boljanska Rijeka in Montenegro. 4th International Symposium "Agrosym 2013" (3-6 October, 2013, Jahorina, Bosnia.

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Chapter on the Monograph

Barovic, G., Spalevic, V., Pesic, V., Vujacic, D. (2018): The Physical and Geographical Characteristics of the Lake Skadar Basin. In: The Handbook of Environmental Chemistry. Springer, Berlin, Heidelberg. DOI https://doi.org/10.1007/698_2018_276

Spalevic, V., Čurović, M., Povilaitis, A., Radusinović, S. (2003): Estimate of Maximum Outflow and Soil Erosion in the Biogradska River Basin. Monographs No1, p. 1-20. Biodiversity of the Biogradska Gora National Park; Urednici: Pešić, V., Karaman, G., Spalevic, V., Jovović, Z., Langurov, M. Odsjek za biologiju Prirodnomatematičkog fakulteta, Univerzitet Crne Gore; Podgorica.

Medarević, M., Čurović, M., Cvjetićanin, R., Spalevic, V., Dubak, D. (2003): Structural Characteristics of Mixed Forests of Spruce, Beech And Fir in the National Park Biogradska Gora. Monographs No1, p.20-29. Biodiversity of the Biogradska Gora National Park; Urednici: Pešić, V., Karaman, G., Spalevic, V., Jovović, Z., Langurov, M. Odsjek za biologiju Prirodnomatematičkog fakulteta, Univerzitet Crne Gore; Podgorica.

Papers published in the International Journals (SCI, SCIE, SSCI, A&HCI, SCOPUS)

Mickovic, B., Mijanovic, D., Spalevic, V., Skataric, G., Dudic, B (2020): Contribution to the Analysis of Depopulation in Rural Areas of the Balkans: Case Study of the Municipality of Niksic, Montenegro. Sustainability 12 (8), 3328

Natanael Rodolfo Ribeiro Sakuno, Augusto Cesar Ferreira Guiçardi, Velibor Spalevic, Junior Cesar Avanzi, Marx Leandro Naves Silva, Ponaldo Luiz Mincato (2020): Adaptação e aplicação do método de erosão potencial para solos tropicais. Rev. Ciênc. Agron. vol.51 no.1 Fortaleza 2020 Epub Feb 03, 2020

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Nikolic, G., Spalevic, V., Curovic, M., Khaledi Darvishan, A., Skataric, G., Pajic, M., Kavian, A., Tanaskovik, V. (2019): Variability of Soil Erosion Intensity Due to Vegetation Cover Changes: Case Study of Orahovacka Rijeka, Montenegro. Not Bot Horti Agrobo, 2019, 47(1): 237-248. DOI: 47.15835/nbha47111310

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1. Upgrade of the sewage system in municipality of Niksic
2. Support to Environmental Management
3. Improvement of waste management in Danilovgrad
4. Energy Development Strategy
5. Environmental Alignment and Solid Waste Management (supply, LOT 1)
6. Environmental Alignment and Solid Waste Management (supply, LOT 2)
7. Environmental Alignment and Solid Waste Management (service)
8. Preliminary design for Berane WWTP
9. Preliminary design for Plav WWTP
10. Upgrading the Pljevlja waste water treatment
11. Raising environmental awareness
12. Supply of IT equipment for EPA
13. Supply of portable field equipment for elementary physical and chemical analysis of soil, water and noise monitoring
14. Drafting Legal Documents in the Field of Communal Services and Waste Management
15. Support to ERA in Economic Regulation of Energy Sector
16. TA for preparation of ToR for IPA 2012 - Strengthening the environmental protection system in Montenegro (NEAS)
17. Development of National climate change strategy by 2030
18. Developing sustainable energy use, IPA 2011
19. Suport to preparation of projects for IPA component III, IPA 2011
20. Strengthening the Environmental protection system in Montenegro
21. Optimal use of energy and natural resources and mitigating natural disaster effects (Service)
22. Optimal use of energy and natural resources and mitigating natural disaster effects (Call for proposals)

EUD/EAR Task Manager for Agriculture and Rural Development (2001-2010):

IPA 2010

23. Support for Capacity Building in Forestry Sector (preparation phase 2009-2010)
24. Strengthening the administration capacity of the Phytosanitary Directorate of MNE (2009-10)

IPA 2009

25. Sustainable management of marine fisheries (service) (2009-2010) / policy & harmonization
26. Sustainable management of marine fisheries (supply) (2009-2010)
27. Sustainable management of marine fisheries (works) (2009-2010)

IPA 2008

28. IPA 2008 Rural Development (preparation 2008) / policy & harmonization
29. Development of a Food Safety Services (service) / policy & harmonization
30. Equipment for Gas Chromatography, Liquid Chromatography and Atomic Absorption Spectrometry
31. General Laboratory Equipment for the Food Safety Services
32. IT equipment for the Food Safety Services
33. Vehicles for the Food Safety Services
34. Control and Eradication of Rabies and Class. Swine Fever (service) / policy & harmonization
35. Control and Eradication of Rabies in Montenegro (supply)

36. Control and Eradication of Classical Swine Fever in Montenegro (supply)

IPA 2007

37. Animal identification and registration (I&R) - Phase II (service) / policy & harmonization
38. Printed products (supply)
39. Hardware (supply)
40. Equipment for the Animal identification system for small ruminants, Software
41. Ear tags for Animal Identification and Registration - Phase II (supply)
42. TA for the Evaluation of "Dev. of Food Safety Services" and "Control of Rabies and CSF " (FWC)
43. TA to the Food safety authorities of MNE for the preparation of ToR for IPA 2008 TA project (FWC)
44. Preparation of ToR for IPA 2008 project: Control and eradication of rabies and CSF in MNE (FWC)
45. TA to the Fishery administration of MNE for the preparation of ToR for the TA IPA 2009 (FWC)

CARDS 2006

46. Supply of Vehicles for the Animal Identification unit (supply)
47. Supply of the Ear Tags & Pliers and Printed Products for an EU compliant I&R system, Lot 1
48. Supply of the Ear Tags & Pliers and Printed Products for an EU compliant I&R system, Lot 2
49. Programming and upgrading of rural development in Montenegro (FWC)
50. Development of the Food Safety services in Montenegro (FWC) / policy & harmonization

CARDS 2005

51. Rehabilitation of Food Safety Laboratories, Podgorica (works)
52. Development and Implementation of an Animal Identification System (service)
53. Supply of Equipment for an EU compliant Animal Identification System, Lot 1
54. Supply of Equipment for an EU compliant Animal Identification System, Lot 2
55. Supply of the Equipment for an EU compliant Animal Identification System, Lot 3
56. Supply of Equipment for an EU compliant Animal Identification System, Lot 4
57. Supply of Equipment for an EU compliant Animal Identification System, Lot 5
58. Audit & Valuation of EAR Counterpart Funds 2006 (FWC)
59. Legal Advice to the EAR on recovery related to "Modernization of Equip. in the Dairy Sector" project
60. Animal Identification and Registration (I&R) - Phase II (FWC) / strategy, policy & harmonization
61. Development of the Food Safety Services in Montenegro (FWC) policy & harmonization
62. Strengthening of the Fishery Sector in SCG (FWC) / strategy, policy & harmonization
63. Support to the Fishery Sector (service)
64. Equipment for Fishery & Fishery Products Control, Lot 1 (supply)
65. Equipment for Fishery & Fishery Products Control, Lot 2 (supply)
66. Supply of Equipment for Fishery Inspectorates in Montenegro and Serbia, Lot3 (supply)
67. Equipment for Fishery & Fishery Products Control, Lot 4 and Lot 6 (supply)
68. Equipment for Fishery & Fishery Products Control, Lot 5 (supply)
69. Equipment for Fishery & Fishery Products Control, Lot 7 (supply)

CARDS 2004

70. Equipment for Secondary Vocational School, Lots 3 & 4 (supply)
71. Equipment for Secondary Vocational School, Lots 5, 6 & 7 (supply)
72. Strategy of development of the MNE Agriculture and Rural areas in compliance with CAP of EU
73. Audit and Valuation of EAR counterpart funds 2005 - Montenegro (FWC)

CARDS 2003

74. Strengthening of Veterinary and Phytosanitary Services TA (service) / policy & harmonization

75. Supply of Phytosanitary equipment to Plant Protection Department (supply)
76. Construction of Veterinary Laboratory Building, Podgorica (works)
77. Supply of Equipment to the Phytosanitary Inspectorate of Montenegro (supply)
78. Equipment & Vehicles to the Phytosanitary Inspectorate, Lot 2 (supply)
79. Supply of Vehicles for the Veterinary Services (supply)
80. Equipment & Vehicles to the Phytosanitary Inspectorate, Lot 4 (supply)
81. Supply of IT Equipment for the Veterinary services (supply)
82. Monitoring of Dairy Sector Projects (FWC) / Monitoring of the Revolving fund

OBNOVA 2001

83. Kolasin - Katun Project (works)
84. Kolasin - Cabins Furnishing for the Katun Project (supply)
85. Strengthening of the Veterinary and Phytosanitary Services (FWC) / policy & harmonization

OBNOVA 2000

86. Modernization of Equipment in Dairy Sector (service) / Establishment of the Revolving fund
87. Supply of Equipment to Dairy Enterprises (Lot 2,3,4) (supply)
88. Supply of Equipment to Dairy Farmers - Lot 1 &3 (supply)
89. Supply of Equipment to Dairy Farmers - Lot 2 (supply)
90. Modernization of Equipment in Dairy Sector - Lot 1 (supply)
91. Modernization of Equipment in Dairy Sector - Lot 2 (supply)
92. Modernization of Equipment in Dairy Sector - Lot 3 (supply)
93. Modernization of Equipment in Dairy Sector - Lot 4 (supply)
94. Modernization of Equipment in Dairy Sector - Lot 5 & 6 (supply)
95. Monitoring of Dairy Sector Projects (FWC) / Monitoring of the Revolving fund
96. Water Catchments (works)
97. Sketch Project for the new dairy plant Podgorica (FWC)
98. TA Livestock Expert (FWC)

OBNOVA 1998

99. Cattle import (follow up, ex post evaluation) / Monitoring and Evaluation of the Revolving fund

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Na osnovu člana 72 stav 2 Zakona o visokom obrazovanju („Službeni list Crne Gore" br. br. 44/14. 47/15, 40/16 i 42/17 i 71/17) i člana 32 stav 1 tačka 9 Statuta Univerziteta Crne Gore, Senat Univerziteta Crne Gore, na sjednici održanoj 26. decembra 2017. godine, donio je

O D L U K U
O IZBORU U ZVANJE

Dr VELIBOR SPALEVIĆ bira se u akademsko zvanje **docent Univerziteta Crne Gore** za **oblast Nauka o zemljištu na Filozofskom fakultetu**, na period od pet godina.

SENAT UNIVERZITETA CRNE GORE
Predsjedavajući

Prof. dr Danilo Nikolić, rektor

Prof. dr Goran Škatarić

Biografija

Goran Škataric je rođen 2. avgusta 1967. godine u Podgorici, Crna Gora. Osnovnu školu završio je u Matagužima, a **srednju ekonomsku školu "Mirko Vešović"** pohađao je u Podgorici u periodu od 1982. do 1984. godine. Nakon toga nastavio je školovanje u **Poljoprivrednoj školi u Baru**, gdje je 1986. godine stekao zvanje poljoprivrednog tehničara.

Studirao je na **Vodoprivrednim melioracijama Poljoprivrednog fakulteta Univerziteta u Beogradu** u periodu od 1987. do 1993. godine.

Postdiplomske studije **iz oblasti agro-ekonomije** završio je na **Poljoprivrednom fakultetu Univerziteta u Novom Sadu** 2008. godine u klasi prof. Dr Radovan Pejanović sa prosječnom ocenom 9,33. Naslov teze: "**Agrarna politika i ruralni razvoj Crne Gore**".

Specijalizaciju iz oblasti zaštite životne sredine obavio je 2010. godine. Predmet obuke se odnosio na primjenu i tretman kanalizacionih muljeva u poljoprivredi - zelene površine i specifični zahtjevi za odlaganje na deponijama.

Godine 2010. završio je **doktorsku disertaciju iz oblasti agrarne ekonomije i ruralnog razvoja** u klasi prof. dr Milana R. Milanovića. Naslov tezi je glasio: "**Ruralni razvoj kao faktor održivog regionalnog razvoja u Republici Crnoj Gori**". U 2019. godini promovisan je u **akademsko zvanje vanredni profesor.**

U 1993. godini zaposlen je kao profesor u Srednjoj poljoprivrednoj školi u Baru. Godinu dana kasnije, 1994. godine, angažovan je kao stručni savjetnik u Agrocentru u Podgorici. Od 1999. godine radi kao samostalni referent u JKP Podgorici. Naredne godine, 2000. godine, postavljen je za izvršnog direktora JKPG.

U periodu od 2003. do 2006. godine pokriva mjesto **zamjenika izvršnog direktora AD "Plodovi Crne Gore".** Od 2006. godine angažovan je kao **savjetnik u Upravnom odboru AD "Plodovi Crne Gore"**. Pored redovnih aktivnosti u AD "Plodovi Crne Gore" bio je i **zamjenik sekretara Sekretarijata za razvoj preduzetništva Glavnog grada**.

Izabran je za sudskog vještaka za oblast poljoprivrede i šumarstva u 2011. godini, a istovremeno je unaprijeđen na mjesto **izvršnog direktora AD "Plodovi Crne Gore"**.

Godine 2012. imenovan je za **direktora Nacionalnog parka Skadarsko jezero**. U 2017. godini dobio je poziciju savjetnika generalnog direktora Nacionalnih parkova Crne Gore.

Bavi se naučno-istraživačkim radom iz oblasti poljoprivrede i ekonomije, sa posebnim osvrtom na pitanja **(1) agrarne ekonomije - ruralnog razvoja i (2) ekološkog inženjeringa - vodoprivrednih melioracija**.

Član je brojnih komisija iz različitih oblasti, kao i koordinator za izradu plana posebne namjene za Nacionalni park Skadarsko jezero za period od 2016. do 2025. godine.

Član nekoliko Vladinih komisija iz **oblasti poljoprivrede i ekonomije**. Učestvovao je u izradi zakona, izmjena i dopuna zakona i zakonskih propisa **iz oblasti poljoprivrede, agroekonomije i ekonomije**.

Autor je **naučne monografije iz oblasti ekonomije - održivog razvoja: "Održivi razvoj: kriza ili regulacija?"**, kao i **knjige – univerzitetskog udžbenika "Tržište i promet poljoprivrednih proizvoda"**.

Do sada je objavio više naučnih radova u domaćim i međunarodnim časopisima (**uključujući tu i radove iz kategorije SCI, SCIE, SSCI, A&HCI**); učestvovao na brojnim međunarodnim naučnim i stručnim skupovima i simpozijumima.

Jedan od organizatora (član Naučnog i Organizacionog odbora) sledećih međunarodnih konferencija:
- International GEA (Geo Eco-Eco Agro) Conference, Podgorica, Crna Gora (**ko-predsjednik Naučnog odboraKonferencije, član Organizacionog odbora, predsjedavajući sesije: Ruralni razvoj i agroekonomija**, koja se bavila radovima **na teme: Ruralna politika; ekonomija i menadžment, diverzifikacija ruralne ekonomije, ruralno finansiranje, zelena ekonomija, ruralni turizam, ruralna sociologija, lokalni, teritorijalni i regionalni razvoj, ruralni inovacioni sistemi, inovacije u poljoprivrednoj obuci, ruralne mreže i klasteri, organizacija prehrambenog lanca; tradicionalni proizvodi, osiguranja i upravljanja rizikom u poljoprivredi (2020)**.

- Green Room Sessions International GEA (Geo Eco-Eco Agro) Conference, Podgorica, Crna Gora (**član Naučnog i Organizacionog odbora, predsjedavajući sesije: Ruralni razvoj i agroekonomija**, koja se bavila radovima **na teme: Ruralna politika; ekonomija i menadžment, diverzifikacija ruralne ekonomije, ruralno finansiranje, zelena ekonomija, ruralni turizam, ruralna sociologija, lokalni, teritorijalni i regionalni razvoj, ruralni inovacioni sistemi, inovacije u poljoprivrednoj obuci, ruralne mreže i klasteri, organizacija prehrambenog lanca; tradicionalni proizvodi, osiguranja i upravljanja rizikom u poljoprivredi (2018)**.

-Međunarodna Eko-konferencija® i Eko-konferencija o bezbjednosti hrane, Novi Sad, Srbija (2018, 2019);
-International Symposium for Agriculture and Food, Macedonia, 2020;
-International symposium for agriculture and food, University "SS. Cyril and Methodius", Macedonia, 2020;
-Četvrta međunarodna naučna konferencija Turizam u funkciji razvoja - Turizam kao generator zapošljavanja, Vrnjačka Banja, Srbija (2019).

Član je **Asocijacije agrarnih ekonomista Balkana;** Balkanske asocijacije za životnu sredinu (Balkan Environmental Association); Nacionalnog udruženja za vodoprivredu Irana (Watershed Management Society of Iran); Počasni član društva za hortikulturu i šumarstvo Transilvanije; Makedonskog nacionalnog komiteta za navodnjavanje i odvodnjavanje (The Macedonian National Committee on Irrigation and Drainage); Društva za proučavanje zemljišta Srbije.

Izabrani je učesnik COST inicijative CA18135 – Zaštita zemljjišta od požara: Nauka i društvo. Ova inicijativa predstavlja mrežu naučnika i praktičara uključenih u istraživanje geo sistema i upravljanje zemljištem, upravljanje rizikom, efektima požara na vegetaciju, faunu, zemljište i vodu, kao i aspektima socio-ekonomskog, geografskog, političkog pristupa upravljanja zemljištem.

U svom istraživačkom radu koristi literaturu publikovanu ruskom i engleskom jeziku. Naučno interesovanje je usmjereno na istraživanja iz oblasti: **(1)** agrarne ekonomije na postdoktorskim studijama na Državnom poljoprivrednom univerzitetu, Herson, Ukrajina; **(2)** Vodoprivredne melioracije Tarbiat Modares University, Tehran, Iran.

Prof. dr Goran Škatarić
Biobliografija

Radovi objavljeni u časopisima koji se nalaze u međunarodnim bazama podataka (SCI, SCOPUS)

1. Mickovic, B., Mijanovic, D., Spalevic, V., **Skataric**, G., Dudic, B (2020): Contribution to the Analysis of the Depopulation in Rural Areas of the Balkans: Case Stady of the Manicipality of Niksic, Montenegro. Sustainability 12 (8), 3328
2. Chalise, D.; Kumar, L.; Spalevic, V.; **Skataric**, G. (2019). Estimation of Sediment Yield and Maximum Outflow Using the IntErO Model in the Sarada River Basin of Nepal. Water, 11, 952. https://www.mdpi.com/2073-4441/11/5/952
3. Palevic, M., Spalevic, V., **Skataric**, G., Milisavljevic, B., Spalevic, Z., Rapajic, B. (2019): Environmental responsibility of member states of the European Union. Journal of Environmental Protection and Ecology 20 (2): 886–895
4. Nikolic, G., Spalevic, V., Curovic, M., Khaledi Darvishan, A., **Skataric**, G., Pajic, M., Kavian, A., Tanaskovik, V. (2019): Variability of Soil Erosion Intensity Due to Vegetation Cover Changes: Case Study of Orahovacka Rijeka, Montenegro. Not Bot Horti Agrobo, 47 (1) : 237-248. DOI:47.15835/nbha47111310
5. Nouraein, M., **Skataric**, G., Spalevic, V., Dudic, B Gregus, M. (2019): Tillage intensity and fertilization effects on sunflower yield, achene quality and soil physicochemical properties under semi-arid conditions. Applied Science, ***2019***, 9(24), 5482;
6. Parsipour, H., Popovic, S., Behzadfar, M., **Skataric**, G., Spalevic, V. (2019): Cities expansion and land use changes of agricultural and garden lands in peri-urban villages (case study: Bojnurd). Agriculture and Forestry, 65(3): 173-187 (SCOPUS)
7. Khaledi Darvishan, A., Mohammadi, M., **Skataric**, G., Popovic, S., Behzadfar, M., Rodolfo Ribeiro Sakuno, N., Luiz Mincato, R., Spalevic, V. (2019): Assessment of Soil erosion, Sediment yield and Maximum outflow, using IntErO model (Case Study: S8-intA Shirindarreh Watershed, Iran). Agriculture and Forestry, 65 (4): 203-211. (SCOPUS)
8. Nacka, M., Simonovska,A., **Skataric, G.**, Dudic, B. (2019): Opportunities to profit under competitive market conditions. Agriculture and Forestry 65 (4), 161-174. (SCOPUS)
9. El Mouatassime, S., Boukdir, A., Karaoui, I., **Skataric, G.**, Nacka, M., Khaledi Darvishan, A., Sestras, P., Spalevic, V. (2019): Modelling of soil erosion processes and runoff for sustainable watershed management: Case study Oued el Abid Watershed, Morocco. Agriculture and Forestry 65 (4), 241-250 (SCOPUS)
10. Mohammadi, M., Khaledi Darvishan, A, **Skataric**, G., Dudic, B., Spalevic, V (2019): Application of IntErO Model to Investigate the Effects of Land Use Changes on Soil Erosion and Sediment Yield in Talar Watershed, Northern Iran. ***in press***.
11. Spalevic, Z., **Skataric**, G., Dudic, B., Gregus, M., Spalevic, V.: Sensory-biological-chemical protection of states persons in Montenegro. International Journal of Environmental Research and Public Health, 2019, ijerph-660006 ***in press***.
12. Nikolic, G.; Spalevic, V.; Susic, Z.; Batilovic, M.; **Skataric**, G.; Bozovic, R.; Djurovic, R.; Vuckovic, D. (2018). The Development of Cartographical Studies and Praxis in Montenegro. Preprints 2018, 2018060414 (doi: 10.20944/preprints201806.0414.v1).

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14. Vlahović, B., **Skataric**, G., Veličković, S. (2017): Wine market in CEFTA Countries, Agroekonomika, 46 (74): 1-10, Novi Sad, Serbia.
15. Spalevic, V., Radanovic, D., **Skataric**, G., Billi, P., Barovic, G., Curovic, M., Sestras, P., Khaledi Darvishan, A. (2017): Ecological-economic (eco-eco) modelling in the mountainous river basins: Impact of land cover changes on soil erosion. Agriculture and Forestry, 63 (4): 9-25. DOI:10.17707/AgricultForest.63.4.01 (Key note paper, presented at the 8th International Agriculture Symposium "AGROSYM 2017", Jahorina, 5-8 October 2017, Bosnia and Herzegovina)

Autorska naučna monografija

1. **Škatarić**, G., Vlahović, B. (2017): Tržište i promet poljoprivrednih proizvoda, Univerziet u Donjoj Gorici, Fakultet za prehrambenu tehnologiju, bezbijednost hrane i ekologiju, Podgorica, Crna Gora. p. 420, ISBN 978-9940-9615-2-7, COBISS.CG-ID 37536272.
2. Baldesku, E., Baležentis, T., Bauk, S., Bilan, Y., Delibašić, M., Delijić, D., Drašković, D., Drašković, V., Ilysheva, N., Jasinskas, E., Jereb, B., Jovović, R., Lakić, S., Lojpur, A., Osipov, Y., Popov, E., Pupavac, D., **Škatarić**, G., Švagždienė, B., Zupanc Isoski, V., Erznkyanm, B. (2017): Sustainable development: Crisis or regulation? Scientific Monographs. Lietuvos sporto universitetas, Sporto g. 6, LT-44221 Kaunas, Lietuva.

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2. Lukovac, K., Guiçardi, A., Nikolic, G., Sakuno, N., Skataric, G., Chalise, D., Silva, M., Mincato, L. (2018): Quantification of intensity of soil erosion in the Komaracka River, Polimlje, Montenegro. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, Book of Proceedings, 279-289.
3. Gruban, V., Barovic, G., Sestras, P., Dan, C., Curovic, M., Skataric, G., Mohammadi, M., Khaledi Darvishan, A. (2019): Geographical factors as determinants of soil erosion intensity: Case study Bijeli Potok, Montenegro. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, Book of Proceedings, 290-300.
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5. Eremić-Đođić, J., Laban, B., Bošnjak, I., Ćirić, Z., Skataric, G., Sedlak, O. (2019): An Audit of the Financing Models for Agricultural Households in Local Governments in Serbia. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, Book of Proceedings, 307-316.
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7. Premović, J., Pejanović, R., Skataric, G. (2019): Tourism and Rural development. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, Book of Proceedings, 329-336.

8. Skataric, G., Dragovic, S. (2019): Application and Economic aspects of solar energy in irrigation of agricultural crops. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, Book of Proceedings, 337-344.
9. Čabarkapa, M., Spalević, V., Sestras, P., Nouraein, M., Chalise, D., Škatarić, G., Silva Tavares, A., Luiz Mincato, R. (2019): Factors as determinants of soil erosion geographical intensity: Application of the river basin model at the Velicka Rijeka, Polimlje, Montenegro. Proceedings, XXIII International Eco-Conference® 2019, 25th–27th September 2019, Novi Sad, Serbia, str. 83-94.
10. Spalevic, V., Barovic, G., Vujacic, D., Ferreira Guiçardi, A., Luiz Mincato, R., Billi, P., Sestras, P., Skataric, G. (2017): The assessment of the soil erosion and runoff in the Sekularska Rijeka river basin, Northeast Montenegro. 2nd International and 14th National Congress of Soil Science Society of Serbia "Solutions and Projections for Sustainable Soil Management". Novi Sad, Serbia, 286-291
11. Skataric, G., Pejanovic, R., Spalevic, V., Vlahovic, B., Sedlak, O., Premovic, J., Djokovic, F., Sarovic, R. (2018): Agricultural policies and rural development of Montenegro. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, 123. Podgorica, Montenegro.
12. Vlahović, B., Užar, D., Škatarić, G. (2018): Comparative analysis of the organic food market in the Republic of Serbia and Neighbouring Countries. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, 139. Podgorica, Montenegro.
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14. Popovic, S. Spalevic, V., Skataric, G., Kosanovic, S. (2018): Land degradation caused by illegal construction in the Bjelopavlici Plain: Case study of the narrow belt along the motorway Podgorica – Danilovgrad, Montenegro. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, 153. Podgorica, Montenegro.
15. Popovic, S. Spalevic, V., Skataric, G., Fikfak, A. (2018): Research and implementation of good agricultural practices for traditional agricultural production in Orja Luka, Danilovgrad, Montenegro. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, 154. Podgorica, Montenegro.
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18. Dragović, S., Spalević, V., Škatarić, G. (2018): Application of solar energy in irrigation of agricultural crops. Green Room Sessions 2018 International GEA (Geo Eco-Eco Agro) Conference, 212. Podgorica, Montenegro.
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УНИВЕРЗИТЕТ ПРИВРЕДНА АКАДЕМИЈА
У НОВОМ САДУ
Датум: 25.09.2019.година
Број: 68/6/19
НОВИ САД

На основу члана 58. став 3. тачка 5. и члана 75. став 2. Закона о високом образовању („Службени гласник РС“ број: 88/2017, број: 27/2018- др. закон и број: 73/2018), члана 37. став 1. тачка 2. Статута Универзитета Привредна академија у Новом Саду (број: 114/1/17 од 01.11.2017.године, број: 22/10-1/18 од 27.02.2018.године, број: 32/2/18 од 26.04.2018.године, број: 2/3-2/18 од 31.10.2018.године и број: 2/1-1/19 од 27.02.2019.године) и члана 8. став 1. Правилника о начину и поступку стицања звања и заснивања радног односа наставника Универзитета (број: 36/2 од 14.09.2006.године), Сенат Универзитета на XVII седници одржаној 25.09.2019.године, на предлог Факултета за економију и инжењерски менаџмент у Новом Саду, донео је следећу

О Д Л У К У

др Горан Шкатарић, бира се у звање ванредног професора за ужу научну област Агрономија, технологија и инжењерски менаџмент, на одређено време, у трајању од 5 (пет) година.

Образложење

Факултет за економију и инжењерски менаџмент у Новом Саду (у даљем тексту: Факултет) расписао је конкурс за заснивање радног односа и стицање звања наставника за ужу научну област Агрономија, технологија и инжењерски менаџмент, који је објављен у дневном листу НС Репортер“, дана 17.01.2019.године.

На конкурс Факултета благовремено се пријавио кандидат, др Горан Шкатарић.

Комисија Факултета у саставу: проф. др Јелена Бошковић, проф. др Саша Игић и проф. др Марко Царић, сачинила је Извештај о кандидату пријављеном на конкурс и предложила је да др Горан Шкатарић буде изабран у звање ванредног професора.

Изборно веће Факултета, на седници одржаној 09.09.2019.године утврдило је предлог Комисије за избор у звање ванредног професора др Горана Шкатарића за ужу научну област Агрономија, технологија и инжењерски менаџмент.

Сенат Универзитета разматрао је предлог Факултета и донео одлуку, као у диспозитиву.

ПОУКА О ПРАВНОМ ЛЕКУ:
Против ове одлуке може се поднети тужба Управном суду у Београду у року од 30 дана од дана достављања ове одлуке.

Председник Сената
Проф. др Мирко Кулић

Доставити:
1. Кандидату
2. Факултету
3. Архиви