Oddelek za geografijo, Filozofska fakulteta Univerze v Ljubljani

Department of Geography, Faculty of Arts, University of Ljubljana

DELA
44

LJUBLJANA 2015

ISSN 0354-0596
DELA
44
2015

Elektronska izdaja — Electronic edition
ISSN 1854-1089

Založnik — Published by
Znanstvena založba Filozofske fakultete Univerze v Ljubljani

Izdajatelj — Issued by
Oddelek za geografijo, Filozofska fakulteta Univerze v Ljubljani

Za založbo — For the Publisher
Branka Kalenić Ramšak, dekanja Filozofske fakultete

Namizno založništvo — Desktop Publishing
Jure Preglau

Tisk — Printed by
Birografika Bori, d. o. o.

Naklada — Edition
400 izvodov

Naslov uredništva — Publisher's address
Oddelek za geografijo, Filozofska fakulteta Univerze v Ljubljani, Aškerčeva 2, SI-1000 Ljubljana

Elektronski dostop — On-line access
http://revije.ff.uni-lj.si/Dela

DELA so vključena v – DELA is included in
Scopus, CGP – Current Geographical Publications, DOAJ, ERIH PLUS, GEOBASE, Central and Eastern European Academic Source, GeoRef, Russian Academy of Sciences Bibliographies, TOC Premier, International Bibliography of the Social Sciences

Izdano s finančno pomočjo Javne agencije za raziskovalno dejavnost Republike Slovenije in Oddelka za geografijo FF Univerze v Ljubljani.

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VARNOST, STABILNOST, ŽIVLJENJSKI SLOG: PREVLADUJOČA KARIERNA SIDRA GOSPODARJEV SLOVENSKIH TRŽNIH KMETIJ

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Izvirni znanstveni članek
COBISS 1.01
DOI: 10.4312/dela.44.1.5-23

Izvleček
V prispevku smo opredelili prevladujoča karierna sidra gospodarjev na slovenskih tržno usmerjenih kmetijah. Prevladujeta sidri varnosti in stabilnosti ter sidro življenjskega sloga, kar kaže, da gospodarji še vedno želijo stabilno, varno in predvidljivo delovno okolje ter samostojnost in prožnost pri organizaciji svojega dela. Stopnja izraženosti kariernih sider opozarja na pomanjkanje upravljavskih sposobnosti kmetov in skromno prisotnost kariernega sidra izziva. Razvoj kmetijstva in velika konkurenčnost znotraj panoge od kmeta zahtevata neprestano premagovanje in reševanje izzivov, iskanje novih priložnosti in odgovorno vodenje kmetije.

Ključne besede: karierna sidra, kmetijstvo, gospodar na kmetiji, družbena geografija, Slovenija

SAFETY, STABILITY AND LIFESTYLE: DOMINANT CAREER ANCHORS AMONG THE HEADS OF SLOVENIA'S MARKET ORIENTATED AGRICULTURAL HOLDINGS

Abstract
The paper is identifying the dominant career anchors among the heads of Slovenia's market orientated agricultural holdings. The dominant anchors are the safety and stability anchors, followed by the lifestyle anchor. This suggests that the heads of Slovenian agricultural holdings want not only a stable, safe and predictable working environment, but also autonomy and a certain degree of flexibility in organising their work. The career

anchors referred to in the agricultural holdings surveyed also indicate a lack of managerial skills among farmers, and there are only few references made to the challenge anchor. The development of agriculture and strong competition are now forcing Slovenian farmers to deal with several challenges, seek new opportunities and manage agricultural holdings in a responsible manner.

Key words: career anchors, agriculture, head of agricultural holding, human geography, Slovenia

1 UVOD

Z usmerjanjem razvoja kmetijstva se v Sloveniji ukvarjamo na različnih ravneh (spodbujanje inovativnih tehnoloških praks, razvoj trženja, povečevanje obsega pridelave, uvajanje novih pridelkov, spodbujanje diverzifikacije dohodka na kmetiji ipd.), pogosto pa pozabljamo na posameznika, v našem primeru na gospodarja kmetije. Niti v procesu izobraževanja niti kasneje se ne obravnava kmetovih sposobnosti, znanja, zmožnosti in stališč, ki predstavljajo osnovo za njegovo vedenje in odločitve, ki so povezane z načrtovanjem, vodenjem in organiziranjem dela na kmetiji.

Od gospodarjev kmetij danes pričakujemo hitro odzivnost, usmerjenost k spremembam in prilagodljivost tržnim trendom. Izhodišče raziskovanja so bila karierna sidra, saj zaobjamejo večino osebnostnih lastnosti in potez, s pomočjo katerih lahko strokovno usmerjamo profesionalni razvoj gospodarja kmetije. V prvi tovrstni raziskavi v Sloveniji smo želeli raziskati vlogo kariernih sider gospodarjev slovenskih tržnih kmetij pri njihovem razvoju, dodatno pa smo ločeno obravnavali še ekološke in konvencionalne pridelovalce. Področje karierne usmeritve je postalo eno ključnih področij za sistematično, načrtovano in posamezniku prilagojeno karierno svetovanje ter posledično za ustrezen karierni razvoj posameznikov v hitro spreminjajočem se okolju.

1.1 Razvojne težnje slovenskega kmetijstva

Kmetijstvo je kljub številnim finančnim podporam in razmeroma utečenim ukrepom kmetijske politike vse bolj odvisno od posameznika (največkrat prav gospodarja), njegovih sposobnosti, potreb, idej in odločitev. Med odločilne dejavnike razvoja kmetijstva in kmetije gotovo sodijo naravne razmere oziroma pridelovalni pogoji, subvencijske sheme, struktura trga, povpraševanje itd., vse bolj pa se kaže, da je v obstoječih razmerah nadaljnji razvoj sektorja pomembno odvisen od osebnostnih sposobnosti in lastnosti posameznika.

Prehod iz socialističnega v tržno gospodarstvo v Sloveniji je namreč prinesel radikalne spremembe v kmetovanju: od stabilnih razmer, povezanih z zajamčenimi administrativnimi cenami številnih kmetijskih produktov v socializmu, do pridružitve Slovenije k EU in hitrega prevzemanja reform in ukrepov evropske skupne kmetijske politike (Knežević Hočevar, 2015). Zadnja leta spremljamo ukinjanje zajamčenih odkupnih cen ter postopno zniževanje kmetijskih plačil (subvencij), ki se bo v programskem obdobju 2014–2020 še nadaljevalo.

Pri usmerjanju razvoja kmetijske dejavnosti čedalje bolj izpostavljamo potrebo po trajnostno zasnovanem razvoju. Ta naj bo gospodarsko spodbuden (in predvsem v pridelovalnem smislu uspešen), okoljsko odgovoren (kmetijstvo ima lahko vlogo obremenjevalca okolja ter pomembnega vzdrževalca kulturne pokrajine in biotske raznovrstnosti) in hkrati prispeva k družbenemu in regionalnemu razvoju podeželja (Slabe Erker in sod., 2015; Klemenčič, Lampič, Potočnik Slavič, 2008; Lampič, 2005; Potočnik Slavič, 2010).

Število slovenskih kmetij upada: po popisnih podatkih iz leta 2010 imamo še 74.646 kmetijskih gospodarstev, obseg kmetijskih zemljišč v uporabi (KZU) ostaja v zadnjem desetletju bolj ali manj nespremenjen, se pa zaradi strukturnih sprememb in specializacije v kmetijski dejavnosti nekoliko povečujeta povprečna velikost kmetije (6,4 ha KZU leta 2010) in delež kmetij, večjih od 30 ha KZU (Popis kmetijskih gospodarstev 2000 in 2010). Z omenjenimi spremembami je povezana tudi vse večja tržna naravnanost kmetij. Po zadnjih popisnih podatkih jih 29.999 (oziroma 40 % vseh kmetij) prideluje pretežno za trg (Popis kmetijskih gospodarstev 2000 in 2010), dejansko število tržno naravnanih kmetij pa je še precej večje. Poleg vse bolj usmerjene oziroma specializirane pridelave se uveljavljajo tudi novejši pristopi (npr. ekološki način pridelave), za katere se pogosteje odločajo kmetje, ki pri svojem delu iščejo izzive in inovativne poti.

Pri ekoloških kmetovalcih je dokazano njihovo večje zadovoljstvo (z delom na kmetiji) in tudi večje zadovoljstvo njihovih družin in delavcev (Gassner, Freyer, Leitner, 2008; Shreck, Getz, Feenstra, 2006; Jansen, 2000), saj ekološko kmetijstvo deluje kot spodbujevalec inovacij v razvoju podeželja (Offermann, Nieberg, 2000; Organic marketing …, 2004). Ekološko kmetijstvo je v zadnjih petnajstih letih v Sloveniji doživelo precejšen razmah. Leta 2014 so ekološka kmetijska zemljišča predstavljala skoraj 8,7 % vseh KZU (41.237 ha KZU), 3298 ekoloških kmetij pa 4,6 % vseh slovenskih kmetij (Analiza stanja …, 2015). Pred desetletjem smo s pripravo Akcijskega načrta za razvoj ekološkega kmetijstva v Sloveniji do leta 2015 ambiciozno načrtovali 20 % ekološko obdelanih KZU, 15 % ekoloških kmetij in kar 10 % (slovenskih) ekoloških živil v strukturi skupne prodaje (Akcijski načrt …, 2005). Številčna rast ekoloških površin in kmetij je vsaj nekoliko sledila zastavljenim ciljem, na področju pridelave pa ekološko kmetijstvo ni upravičilo pričakovanj. Razlog za takšno stanje lahko vsaj deloma najdemo tudi v neustrezni zastopanosti kariernih sider med slovenskimi kmeti.

1.2 Teorija kariernih sider

Karierno sidro predstavlja značilno specifično podobo o lastnih sposobnostih, potrebah, vrednotah, stališčih in motivih, ki vplivajo na težnjo posameznika k opravljanju določenih poklicev oziroma delovnih nalog (Schein, 1974; 1996). Schein (1974) je opredelil osem kariernih sider (preglednica 1), ki predstavljajo samozaznane sposobnosti in talente ter predstavljajo pomemben del posameznikove karierne usmeritev (DeLong, 1982). Običajno pri posamezniku prevladuje eno sidro (Schein, 1978), a DeLong (1982) ter Butler in Waldroop (1999) ugotavljajo, da običajno eno do tri sidra skupaj oblikujejo posameznikovo kariero in delovno učinkovitost.

Preglednica 1: Predstavitev značilnosti kariernih sider
Table 1: The characteristics of career anchors

Karierno sidro	Osnovne značilnosti posameznikov	Vrste in načini dela	Motivacija za delo
Tehnično-funkcionalno sidro	Pogosto se specializirajo in poistovetijo z vsebino dela, predvsem s tehničnimi in funkcionalnimi področji, na katerih so uspešni, ter razvijajo svoje spretnosti.	V prvi vrsti jim je pomembna vsebina dela. Potrebujejo izziv in naloge, pri katerih lahko izkazujejo in razvijajo svoje spretnosti in talente.	Potrebujejo predvsem priznanje in potrditev s strani kolegov iste stroke.
Menedžersko sidro	Poudarjajo poznavanje različnih področij. Zanima jih vodenje, sposobni so prevzemati odgovornost in željo napredovati.	Želijo imeti veliko odgovornosti, izzive in možnosti za vodenje. Delovno mesto jim mora omogočati, da se lahko prek svojega dela istovetijo z organizacijo.	Potrebujejo vedno več odgovornosti ter možnost vodenja. Želijo prispevati k uspehu podjetja, hkrati biti nagrajeni z visokim dohodkom.
Sidro samostojnosti in neodvisnosti	Delo želijo opravljati na svoj način, v svojem lastnem ritmu in s svojimi merili. Ne prenesejo omejitev.	Najraje imajo jasno opisano, časovno določeno delo, najpogosteje se nagibajo k neodvisnim poklicem.	Želijo imeti proste roke pri izbiri sredstev in načinu dela.
Sidro varnosti in stabilnosti	Iščejo službo, ki jim zagotavlja trajno delovno razmerje, dobre pokojninske sheme in druge ugodnosti. Odgovornost za kariero so pripravljeni prepustiti delodajalcu.	Želijo si predvsem stabilno in predvidljivo delo in dobre delovne razmere.	S strani delodajalca pričakujejo stalne spodbude ter priznanje za lojalnost.
Sidro podjetniške ustvarjalnosti	Čutijo potrebo po lastnih projektih (razvoju lastnih izdelkov in storitev) in odpiranju lastnih podjetij. Imajo tudi močno izraženo težnjo po dokazovanju (na svojem strokovnem področju).	Pogosto odpirajo lastna podjetja in iščejo nove priložnosti.	Težijo k širjenju poslovanja, obsega dela ter k vedno večjemu zaslužku.
Sidro predanosti	Pri svojem delu želijo pomagati drugim. Svoje osebne vrednote pogosto enačijo s poklicnimi.	Pri delu pričakujejo možnost vplivanja na organizacijo ali družbo v smislu njihovih vrednot.	Želijo, da njihove vrednote sprejema širši krog ljudi. Potrebujejo priznanje s strani kolegov ali nadrejenih.
Sidro izziva	Iščejo izziv, želijo premagovati nemogoče ovire, reševati nerešljive probleme, premagati močnega nasprotnika.	Pri svojem delu hočejo preizkušati svoje zmogljivosti in sposobnosti.	Motivira jih raznoliko delo.
Sidro življenjskega sloga	Pomembna jim je uravnoteženost med osebnim in poklicnim življenjem ter povezanost zadovoljevanja potreb posameznika, družine in kariere.	Pri delu si želijo prožnosti (gibljiv delovni čas, prilagodljivo delo (npr. delo doma ipd.).	Pričakujejo, da njihov delodajalec kaže tako spoštovanje do osebnih in družinskih zahtev kot tudi razumevanje njihovih individualnih želja.

Vir/Source: Brečko, 2006

Kniveton (2004) in Nordvik (1996) sta opozorila, da s sistemom kariernih sider posameznikov ne moremo kategorizirati, temveč lahko le prepoznamo njihovo karierno usmeritev, ki jih vodi po poklicni poti. S tem lahko razvojne načrte prilagodimo posamezniku, posledično pa le-ta doživlja manj stresa. Strokovnjaki namreč vse bolj ugotavljajo, da je uspešen tisti, ki je zadovoljen s svojo izbiro poklica, da lahko uresničuje osebne vrednote, ima jasne cilje in oblikovano samopodobo (Brečko, 2008).

Karierna sidra so bila predmet številnih raziskav v različnih delovnih okoljih tako v Sloveniji kot drugje po svetu. Rezultati kažejo na pomembne povezave s starostjo, spolom in kulturnim okoljem, iz katerega posamezniki prihajajo (Coetzee, Schreuder, 2009; Jiang, Klein, Balloun, 2001; Suutari, Taka, 2004). Če primerjamo karierna sidra glede na starost oziroma generacijo, ki ji posameznik pripada, se pokaže, da v Sloveniji s starostjo narašča prisotnost sidra življenjskega sloga in sidro izziva (Brečko, 2008). Pri generaciji X (posamezniki, rojeni med leti 1965 in 1978) je bil najprej opazen porast sidra življenjskega sloga (velika potreba po usklajevanju družinskega in poklicnega življenja). Pri generaciji Y (posamezniki, rojeni med leti 1979 in 1999) poleg tega sidra narašča še sidro izziva, k čemur je najverjetneje pripomogla raznolikost izzivov v okolju ter njihova intenziteta (Brečko, 2004). Schein (1996) pa poudarja, da se v obdobju srednje in pozne starosti karierna sidra začnejo stabilizirati in ostajajo relativno stabilna.

Prevladujoča karierna sidra naj bi se povezovala tudi z določeno vrsto poklicev. V Sloveniji je Brečkova (2008) izvedla longitudinalno študijo, ki je omogočila vpogled v povezave med različnimi poklici in prevladujočimi kariernimi sidri. Pri direktorjih podjetij je prevladovalo menedžersko sidro, pri vodjih oddelkov, inženirjih in ekonomistih tehnično-funkcionalno sidro, pri zaposlenih v pravni službi sidro samostojnosti in neodvisnosti, medtem ko je sidro varnosti in stabilnosti najpogosteje prevladovalo pri organizatorjih dela, kadrovskih in upravnih delavcih. Tovrstna raziskava med kmetovalci v Sloveniji še ni bila izvedena.

Na splošno velja, da so najbolj učinkoviti ljudje, ki so zaposleni na delovnih mestih, za katere imajo ustrezne kompetence, in so hkrati zadovoljni s svojim delom. Schein (1974) je z modelom kariernih sider pojasnil, da si s pomočjo kariernih sider posameznik izbere najbolj zaželeno karierno razvojno pot, kar v našem primeru pomeni, da naj bi se želje, interesi in osebnostne lastnosti gospodarja kmetije skladali z njegovim delovnim okoljem. Predpostavimo lahko, da če se posameznikova karierna sidra ne ujemajo z lastnostmi delovnega okolja, lahko pride pogosteje do tesnobnosti, stresa, nezadovoljstva z delom ter želje po menjavi delovnega mesta (Feldman, Bolino, 1996; Jiang, Klein, Balloun, 2001).

Osrednji namen raziskave je bil ugotoviti izraženost prevladujočih kariernih sider (osebnostnih lastnosti) gospodarjev tržnih kmetij v Sloveniji. Na osnovi ugotovitev smo podali usmeritve, v katerih elementih in kako je potrebno vpeljati spremembe in ukrepe za podporo gospodarjem kmetij pri njihovem delu in osebnem zadovoljstvu. Analizirali smo tudi povezave med demografsko vitalnostjo kmečkih gospodinjstev, starostjo gospodarjev, njihovo kmetijsko izobrazbo, zadovoljstvom z rezultati dela na kmetiji in obsegom dohodka gospodinjstva iz kmetijstva. Znotraj kmetijstva smo želeli izpostaviti še hitro razvijajoči sektor ekološkega kmetijstva, zato smo ugotavljali še morebitne razlike med gospodarji ekoloških in konvencionalnih kmetij.

2 METODE DELA

Pri ugotavljanju zastopanosti kariernih sider v določenem poklicu oziroma podjetju uporabljamo vprašalnik kariernih sider (ang. *Career Orientations Inventory*; Brečko, 2004, 2008; Schein, 1990). Originalni vprašalnik vsebuje 40 postavk, ki opisujejo osem kariernih sider:

- tehnično-funkcionalno sidro (npr. »Želim si postati tako dober v kmetovanju, da bi ljudje lahko iskali moje strokovne nasvete.«);
- menedžersko sidro (npr. »Želim si voditi kmetijo ter odločati o stvareh, ki bi vplivale na veliko ljudi.«);
- sidro samostojnosti in neodvisnosti (npr. »Želim si tako delo, ki mi dopušča svobodo pri delu.«);
- sidro varnosti in stabilnosti (npr. »Varnost in stabilnost na kmetiji sta mi pomembnejši kot svoboda in neodvisnost.«);
- sidro predanosti (npr. »Pri delu se počutim najbolj izpolnjenega, kadar lahko uporabljam svoje talente, da pomagam drugim.«);
- sidro izziva (npr. »Želim si takšno delo na kmetiji, kjer bom lahko reševal zelo zahtevne in izzivalne probleme ter situacije.«) in
- sidro življenjskega sloga (npr. »Vedno sem iskal takšne delovne priložnosti, ki omogočajo večjo usklajenost z osebnimi in družinskimi obveznostmi.«).

V skladu z namenom naše raziskave o prevladujočih kariernih sidrih gospodarjev kmetij smo vprašalnik prilagodili tako, da smo določene besede iz poslovnega sveta nadomestili z ustreznimi vzporednimi pojmi s področja kmetovanja. Zaradi dolžine vprašalnika in pričakovane strokovnosti vseh anketirancev smo izločili sidro podjetniške ustvarjalnosti (pet trditev oziroma postavk), tako da smo na koncu ugotavljali zastopanost sedmih kariernih sider.

Anketiranci so s pomočjo šeststopenjske lestvice (1 – nikakor ne velja zame, 6 – popolnoma velja zame) ocenjevali strinjanje s posamezno trditvijo. Vprašalnik meri, katero sidro je pri posamezniku prevladujoče. Za preverjanje notranje zanesljivosti vključenih lestvic smo uporabili Cronbachov α koeficient: tehnično-funkcionalno sidro ($\alpha = 0{,}64$), menedžersko sidro ($\alpha = 0{,}52$), sidro samostojnosti in neodvisnosti ($\alpha = 0{,}60$), sidro varnosti in stabilnosti ($\alpha = 0{,}50$), sidro predanosti ($\alpha = 0{,}77$), sidro izziva ($\alpha = 0{,}84$) in sidro življenjskega sloga ($\alpha = 0{,}70$).

V raziskavi je sodelovalo 273 slovenskih gospodarjev kmetij, in sicer 169 s konvencionalnih in 104 z ekoloških kmetij. V raziskavo smo vključili kmetije, ki so vsaj v določenem segmentu tudi tržno naravnane (tj. da so v okviru vprašalnika navedli pridelke in proizvode, ki jih tržijo), saj razvoj sektorja pomembno povezujemo s pridelovalno vlogo kmetijstva. Anketiranje ekoloških kmetov je potekalo v letih 2011–2012, anketiranje konvencionalnih kmetovalcev pa leta 2013. Anketiranje ekoloških kmetov smo izvajali v okviru raziskave CRP *Ekonomika ekoloških kmetij* (Lampič in sod., 2013), kjer smo preučevali predvsem tržni vidik ekološke pridelave v Sloveniji, vprašalnik o kariernih sidrih pa je predstavljal dopolnitev osnovnega vprašalnika o ekonomiki ekoloških tržnih kmetij. Terensko raziskavo

kariernih sider gospodarjev konvencionalnih tržnih kmetij smo izvedli leto kasneje, in sicer na naključno izbranem vzorcu tržnih kmetij. Poleg osnovnega vprašalnika kariernih sider smo od kmetov pridobili še osnovne informacije o značilnostih kmečkega gospodinjstva (število in starost članov), značilnostih gospodarja (starost, izobrazba, zaposlitveni status) in kako vidijo prihodnost svoje kmetije. Zaprosili smo jih tudi, naj na petstopenjski lestvici ocenijo svoje osebno zadovoljstvo z rezultati, ki jih daje kmetija.

Osnovne značilnosti vzorca gospodarjev so prikazane v preglednici 2. Opazimo nekatere posebnosti našega vzorca, npr. visok delež gospodarjev s kmetijsko izobrazbo in velik delež zaposlenih na kmetiji, kar povezujemo z izborom (vsaj deloma) tržno usmerjenih kmetij. Pri obdelavi podatkov smo združili anketirance glede na starost le v dve skupini in ju v nadaljevanju primerjali med seboj – mlajše (mlajši od 50 let, 51 %) in starejše (starejši od 50 let, 49 %).

Preglednica 2: Zastopanost gospodarjev konvencionalnih in ekoloških kmetij (N = 273) glede na demografske spremenljivke
Table 2: The distribution of heads of market-oriented agricultural holdings (conventional and organic; N=273) according to selected demographic variables

Spremenljivka		**Konvencionalni kmetje**		**Ekološki kmetje**		**Skupaj**	
		N	*%*	*N*	*%*	*N*	*%*
Starost gospodarja	Do 35 let	21	12,4	13	12,5	34	12,5
	36 do 50 let	69	40,8	36	34,6	105	38,5
	51 do 60 let	46	27,2	35	33,7	81	29,7
	61 do 70 let	21	12,4	18	17,3	39	14,3
	Nad 70 let	12	7,1	2	1,9	14	5,1
	Skupaj	**169**	**100,0**	**104**	**100,0**	**273**	**100,0**
Dosežena stopnja formalne izobrazbe	OŠ ali manj	28	18,2	11	10,7	39	15,2
	Poklicna, srednja šola	114	74,0	75	72,8	189	73,5
	Višja, visoka, mag., doktorat	12	7,8	17	16,5	29	11,3
	Skupaj	**154**	**100,0**	**103**	**100,0**	**257**	**100,0**
Kmetijska izobrazba	Da	70	50,4	26	25,7	96	40,0
	Ne	69	49,6	75	74,3	144	60,0
	Skupaj	**139**	**100,0**	**101**	**100,0**	**240**	**100,0**
Gospodarjev status	Dijak, študent	1	0,8	0	0,0	1	0,4
	Redno zaposlen	14	11,6	20	19,4	34	15,2
	Upokojenec	16	13,2	19	18,4	35	15,6
	Nezaposlen	0	0,0	2	1,9	2	0,9
	Kmet, zaposlen doma na kmetiji	90	74,4	62	60,2	152	67,9
	Skupaj	**121**	**100,0**	**103**	**100,0**	**224**	**100,0**

Na razvojno naravnanost kmetije in predvsem njihovo tržno pridelavo vpliva vrsta dejavnikov. Slabetova (2015) na ravni kmetije opredeljuje kot odločilna dva sklopa

dejavnikov, in sicer t. i. pridelovalne in organizacijske kapacitete kmetije. Ugotavlja, da je od organizacijskih kapacitet kmetije odvisno, kako bodo na kmetiji gospodarji upravljali z naravnimi viri in razpoložljivimi pridelovalnimi sredstvi. Znotraj organizacijskih kapacitet opredeljuje finančni in človeški potencial kmetije, v katerem nakaže potrebo po upoštevanju upravljavskega profila gospodarja (Slabe, 2015).

Vsekakor velja naš naključni vzorec gospodarjev tržnih kmetij primerjati z dejansko demografsko vitalnostjo kmetijskih gospodinjstev, izobrazbo oziroma kmetijsko izobrazbo kmetov (gospodarjev), s prihodnostjo kmetij in z (osebnim) zadovoljstvom kmetov z rezultati, ki jih daje njihovo delo na kmetiji. Opredelitev demografske vitalnosti kmetije je kompleksna in označuje demografsko živost celotnega kmečkega gospodinjstva, ki jo opredelimo s številom, starostjo in zaposlitvenim statusom družinskih članov (Klemenčič, Lampič, Potočnik Slavič, 2008; Lampič, 2008). Uradna statistika teh podatkov ne beleži, so pa ključnega pomena za razvojne odločitve kmetije, ki so praviloma dolgoročne in povezane z delovno silo. Dosedanje raziskave kažejo, da je delež demografsko perspektivnih kmetij višji med usmerjenimi in specializiranimi, tudi med kmetijami, ki si povečujejo dohodek z dopolnilnimi dejavnostmi (Nienaber, Potočnik Slavič, 2013), in ekološkimi kmetijami (Slabe in sod., 2010; Lampič in sod., 2013, Lampič, Slabe, 2013).

Še pred leti je bila skromna formalna izobrazba slovenskega kmeta ena ključnih slabosti in ovir za gospodarski razvoj kmetijstva. Delež gospodarjev zgolj s praktičnimi izkušnjami je leta 2000 znašal še 84 %, leta 2010 pa se je zmanjšal na 64 % (Popis kmetijstva 2000 in 2010). Še pomembnejše je spremljanje podatkov o formalni kmetijski izobrazbi, ki se hitro izboljšuje, predvsem v kmetijsko bolj razvitih regijah (npr. Pomurski statistični regiji). Leta 2010 je imelo formalno kmetijsko izobrazbo 8,8 % vseh gospodarjev (2000: 5,7 %), potreba po novih znanjih pa se kaže predvsem v deležu kmetov, ki so opravili različne dodatne tečaje in izobraževanja, saj se je ta povečal z 8 % (2000) na kar 27 % (2010).

Za prihodnost kmetije, kot jo ocenjuje nosilec kmetijskega gospodarstva, ima zagotovljeno nasledstvo veliko vlogo. Eden glavnih problemov v življenjskem ciklusu družinske kmetije je medgeneracijsko nasledstvo, s katerim se zagotavlja nadaljevanje 'tradicije' kmetijske dejavnosti skozi generacije (Bohak, 2011). Dosedanje raziskave v Sloveniji kažejo, da je nadaljevanje kmetovanja oziroma nadaljnji razvoj in uvajanje novosti mnogo bolj izražen med že usmerjenimi, specializiranimi in tržnimi kmetijami. Tako smo v raziskavi med kmeti na območju Mestne občine Ljubljana (189 kmetij; Lampič, 2008) zabeležili kar tretjino takšnih, ki v kmetijstvu ne vidijo prave prihodnosti in pričakujejo, da bo kmetijska dejavnost v nekaj letih zamrla. Po drugi strani smo npr. med ekološkimi pridelovalci (242 ekoloških kmetij; Slabe, Lampič, Juvančič, 2011) zabeležili le 14 % tistih, ki dolgoročno ne vidijo prihodnosti za svojo kmetijo. Med tržnimi kmetijami, vključenimi v našo raziskavo, je ta delež znašal le 5,2 % (od 271 odgovorov).

Vprašanje o zadovoljstvu z rezultati kmetije smo naslovili na gospodarja in odraža njegovo osebno stališče in videnje rezultatov dela. To vprašanje smo v raziskavo vključili predvsem zato, ker so predhodne študije pokazale, da je ustrezna karierna usmeritev povezana tudi z delovno učinkovitostjo (Butler, Waldroop, 1999) ter zadovoljstvom pri delu (Brečko, 2008; Jiang, Klein, Balloun, 2001). Že pri raziskavi ekoloških tržnih kmetij

(Lampič in sod., 2013) se je pokazalo, da je lahko razumevanje zadovoljstva z delom na kmetiji in rezultati, ki jih ta daje, zelo subjektivno. Pričakovali smo, da bodo gospodarji ekoloških kmetij bolj zadovoljni z rezultati svojega dela kot konvencionalni.

3 REZULTATI

Uvodoma so predstavljene opisne statistike. Normalnost razporeditve rezultatov lestvic smo testirali s Shapiro-Wilkovim testom, ki je primeren za napovedovanje normalnosti razporeditve pri manjših vzorcih. S krepkim tiskom so označene vrednosti, ki kažejo statistično pomembno odstopanje od normalne razporeditve na ravni tveganja 5 %.

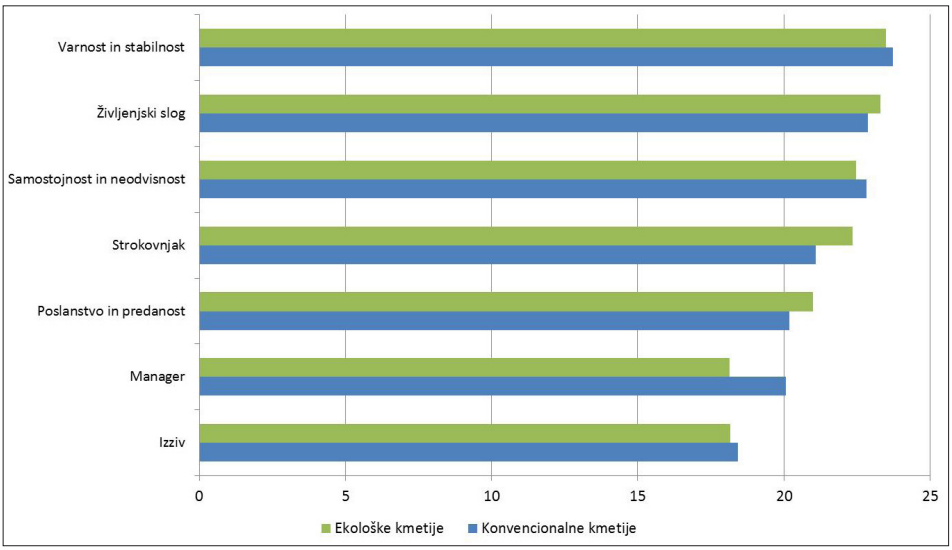
Preglednica 3: Opisne statistike in rezultati testiranja normalnosti razporeditev vključenih postavk ter Vprašalnika kariernih sider pri vzorcu kmetij (N = 273)
Table 3: Descriptive statistics and results of testing distribution of included items and Career Anchors Questionnaire of included agricultural holdings (N = 273)

	Min	Max	M	SD	Asim.	Spl.	W	p
Zadovoljstvo	1	5	3,64	0,94	–0,79	0,82	0,854	**0,000**
Vitalnost	1	7	4,87	1,26	–0,76	–0,07	0,885	**0,000**
Delež dohodka iz kmetijstva	0	100	60,62	27,09	–0,11	–0,90	0,949	**0,000**
Vprašalnik kariernih sider								
Tehnično-funkcionalno	8	30	21,34	4,56	–0,43	–0,31	0,976	**0,000**
Menedžersko	6	29	19,25	4,52	–0,21	–0,02	0,986	**0,015**
Samostojnost in neodvisnost	11	30	22,65	4,12	–0,58	0,25	0,966	**0,000**
Varnost in stabilnost	12	24	23,63	3,60	–0,35	0,10	0,977	**0,000**
Predanost	6	30	20,20	5,08	–0,29	–0,17	0,984	**0,007**
Izziv	5	30	18,17	6,00	0,02	–0,79	0,981	**0,002**
Življenjski slog	7	30	22,85	4,43	–0,76	0,89	0,958	**0,000**

Legenda: Min = minimum; Max = maksimum; M: srednja vrednost; SD = standardni odklon; Asim. = asimetrija; Spl. = sploščenost; W = Shapiro-Wilkov koeficient; p = statistična pomembnost
Legend: Min = minimum; Max = maximum; SD = standard deviation; M = mean value; Asim. = asymmetry; Spl. = skewness; W = Shapiro-Wilk coefficient; p = statistical significance

Iz preglednice 3 je razvidno, da imajo vse lestvice razporeditev drugačno od normalne, zato smo v nadaljevanju za preverjanje statistične pomembnosti razlik med skupinama in povezav med vprašalnikom ter drugimi obravnavanimi neodvisnimi in odvisnimi spremenljivkami uporabili neparametrične postopke. V prvem koraku smo pogledali, kakšen profil kariernih sider imajo gospodarji preučevanih tržnih kmetij v Sloveniji ter ali obstajajo razlike v izraženosti profila med gospodarji konvencionalnih in ekoloških kmetij (slika 1).

Slika 1: Razlike v prevladujočem profilu kariernih sider med gospodarji konvencionalnih in ekoloških kmetij (N = 273)
Figure 1: Differences on prevailing career anchors' profile between heads of conventional and organic farms (N = 273)



Pri gospodarjih preučevanih konvencionalnih in ekoloških kmetij je najbolj izraženo karierno sidro varnosti in stabilnosti, sledita sidri življenjskega sloga ter samostojnosti in neodvisnosti. Gospodarji anketiranih slovenskih kmetij tako najpogosteje iščejo delo, ki jim omogoča dolgoročno varnost ter stabilne in predvidljive delovne razmere. Pri gospodarjih ekoloških kmetij izraziteje prednjači tehnično-funkcionalno sidro (značilno za to sidro je »…biti dober strokovnjak na svojem področju«), s katerim posameznik poudarja pomembnost tehnične in vsebinske plati dela. Pri obeh obravnavanih skupinah je visoko izraženo tudi sidro življenjskega sloga, ki kaže željo po uspešnem usklajevanju dela in zasebnega življenja. Obe skupini imata najmanj izraženo sidro izziva, kar nakazuje, da anketiranim gospodarjem na splošno primanjkuje notranje potrebe po izzivih, ne čutijo želje po odkrivanju novih področij, oziroma si redkeje želijo preizkušanja drugačnih načinov in oblik dela. Razlike v izraženosti kariernih sider med obema skupinama gospodarjev kmetij so statistično pomembne le pri menedžerskem kariernem sidru ($F(1,271) = 7{,}05$; $p < 0{,}01$), kjer se višje ocenjujejo gospodarji konvencionalnih kmetij ($M_{konv} = 20{,}07$, $SD_{konv} = 4{,}03$; $M_{eko} = 18{,}13$, $SD_{eko} = 5{,}21$).

V nadaljevanju sledijo prikazi primerjav rezultatov med anketiranimi gospodarji tržnih konvencionalnih in ekoloških kmetij glede na ocenjevanje njihovega zadovoljstva z rezultati, ki jih daje kmetija, ocena demografske vitalnosti kmetije ter vizija gospodarjev o prihodnosti razvoja kmetije.

Preglednica 4: Razlike v zadovoljstvu gospodarjev konvencionalnih in ekoloških kmetij z rezultati, ki jih daje njihova kmetija
Table 4: Differences between the heads of conventional and organic farms regarding their satisfaction with their farms' outputs

	Konvencionalni kmetje		Ekološki kmetje		Skupaj	
Stopnja zadovoljstva	**N**	**%**	**N**	**%**	**N**	**%**
Nezadovoljen	3	1,8	8	7,8	11	4,1
Delno nezadovoljen	12	7,1	2	2,0	14	5,2
Srednje zadovoljen	54	32,0	24	23,5	78	28,8
Delno zadovoljen	78	46,2	50	49,0	128	47,2
Zadovoljen	22	13,0	18	17,6	40	14,8
Skupaj	169	100,0	102	100,0	271	100,0

Iz preglednice 4 je razvidno, da je več kot 60 % anketiranih gospodarjev kmetij zadovoljnih oziroma delno zadovoljnih z rezultati, ki jih daje njihova kmetija. Visoko zadovoljstvo je še nekoliko bolj izraženo med ekološkimi kmeti (66,6 % vprašanih). Istočasno je v tej skupini 9,8 % kmetov nezadovoljnih, med gospodarji konvencionalnih kmetij pa 8,9 %, kar kaže tudi na ustrezno primerljivost obeh skupin.

Preglednica 5: Razlike v demografski vitalnosti anketiranih konvencionalnih in ekoloških kmetij
Table 5: Differences between conventional and organic farms regarding the demographic vitality

Demografska vitalnost	Konvencionalne kmetije		Ekološke kmetije		Skupaj	
	N	**%**	**N**	**%**	**N**	**%**
Manj perspektivne	11	6,5	6	5,8	17	6,2
Pogojno perspektivne	49	29,0	23	22,1	72	26,4
Zelo perspektivne	109	64,5	75	72,1	184	67,4
Skupaj	169	100,0	104	100,0	273	100,0

Glede na sicersnjo slabo demografsko sliko slovenskih kmetij je podatek, da je v našem vzorcu sodelovalo kar 67,4 % kmetij, ki jih odlikuje visoka stopnja demografske vitalnosti, izjemno pozitiven. Podrobnejša primerjava kaže, da se trenutno več ekološko kot konvencionalno usmerjenih kmetij uvršča med vitalne (preglednica 5).

Preglednica 6: Razlike med gospodarji konvencionalnih in ekoloških kmetij glede vizije prihodnjega delovanja kmetije
Table 6: Differences between the heads of conventional and organic farms regarding the vision of the future operation of their farm

	Konvencionalne kmetije		Ekološke kmetije		Skupaj	
Bodoči razvoj kmetije	**N**	**%**	**N**	**%**	**N**	**%**
Nima prave prihodnosti	9	5,4	5	4,8	14	5,2
Ostaja v okviru sedanjega	60	35,9	40	38,5	100	36,9
Odpirajo se nove možnosti	98	58,7	59	56,7	157	57,9
Skupaj	167	100,0	104	100,0	271	100,0

Gospodarji anketiranih tržnih kmetij so poročali tudi o subjektivnem pogledu na prihodnji razvoj njihove kmetije (preglednica 6). Razmišljanja oziroma ocene perspektivnosti obeh obravnavanih skupin so zelo podobne: 58,7 % gospodarjev konvencionalnih ter 56,7 % gospodarjev ekoloških kmetij ocenjuje, da se v prihodnosti obetajo nove priložnosti za nadaljnji razvoj in rast kmetije.

Za testiranje statistično pomembnih razlik med skupinami anketiranih gospodarjev konvencionalnih in ekoloških tržnih kmetij, mlajših in starejših gospodarjev ter gospodarjev s formalno in neformalno kmetijsko izobrazbo smo uporabili Mann-Whitneyjev neparametrični test. Do pomembne razlike med obravnavanimi kmetijami prihaja le pri deležu dohodka iz kmetijstva: na konvencionalnih kmetijah je delež dohodka iz kmetijstva nižji kot na ekoloških (M_{konv} = 60,24, SD_{konv} = 27,17; M_{eko} = 67,75, SD_{eko} = 28,73).

Preglednica 7: Testiranje razlik med mlajšimi (N = 139) in starejšimi (N = 134) gospodarji anketiranih kmetij o kariernih sidrih
Table 7: Testing differences on career anchors between younger (N = 139) and older (N = 134) heads of farms

	z	p
Zadovoljstvo	–0,263	0,793
Vitalnost	–3,720	**0,000**
Delež dohodka iz kmetijstva	–2,098	**0,036**
Vprašalnik kariernih sider		
Tehnično-funkcionalno	–7,68	0,442
Menedžersko	–2,156	**0,031**
Samostojnost in neodvisnost	–1,696	0,090
Varnost in stabilnost	–1,122	0,262
Predanost	–1,169	0,243
Izziv	–1,377	0,168
Življenjski slog	–0,790	0,430

Legenda: z = Mann-Whitneyjev koeficient; p = statistična pomembnost
Legend: z = Mann-Whitney coefficient; p = statistical significance

Analiza je pokazala, da med mlajšimi in starejšimi gospodarji ne prihaja do pomembnih razlik v zadovoljstvu z rezultati, ki jih daje njihova kmetija. Kmetije mlajših gospodarjev so bolj demografsko vitalne (M_{mladi} = 2,77, SD_{mladi} = 0,42; M_{stari} = 2,45, SD_{stari} = 0,71) ter s kmetovanjem zaslužijo več denarja kot na kmetijah starejših gospodarjev (M_{mladi} = 66,89, SD_{mladi} = 26,83; M_{stari} = 59,41, SD_{stari} = 28,74). Pri mlajših gospodarjih kmetij se tudi pogosteje pojavlja menedžersko karierno sidro (M_{mladi} = 19,91, SD_{mladi} = 4,27; M_{stari} = 18,74, SD_{stari} = 4,86). Pokazalo se je tudi, da anketiranim kmetijam, katerih gospodarji imajo formalno kmetijsko izobrazbo, kmetijstvo praviloma predstavlja pomembnejši vir dohodka kot kmetijam, kjer so gospodarji brez nje (M_{izob} = 73,62, SD_{izob} = 24,03; M_{brez} = 58,73, SD_{brez} = 28,76). Dodatna izobraženost na kmetijskem področju pa ni pokazala razlik pri izraženosti kariernih sider.

In kakšna je smer ter stopnja povezanosti med karierno usmerjenostjo gospodarja kmetije, demografskimi lastnostmi ter rezultati poslovanja kmetije? Ker se je porazdelitev vključenih spremenljivk statistično pomembno razlikovala od normalne, smo uporabili Spearmanov ρ koeficient korelacije. Korelacijska analiza ($N = 273$) je pokazala, da je menedžersko karierno sidro bolj značilno za mlajše gospodarje kmetije ($r = –0,14$; $p < 0,05$) ter tiste, ki imajo dodatno kmetijsko izobrazbo ($r = 0,15$; $p < 0,05$). Lastniki kmetij z bolje izraženim tehnično-funkcionalnim kariernim sidrom so tudi bolj zadovoljni z rezultati, ki jih daje kmetija ($r = 0,18$; $p < 0,01$). Prav tako se višja stopnja zadovoljstva povezuje tudi s kariernim sidrom izziva ($r = 0,15$; $p < 0,05$). Višja stopnja vitalnosti kmetije pa se povezuje z bolj izraženim kariernim sidrom življenjski slog ($r = 0,12$; $p < 0,05$). Gospodarji kmetije, pri katerih prevladujeta tehnično-funkcionalno sidro ($r = 0,26$; $p < 0,01$) ter sidro samostojnosti in neodvisnosti ($r = 0,14$; $p < 0,05$), poročajo o višjem dohodku iz kmetijstva.

4 RAZPRAVA IN ZAKLJUČKI

Med gospodarji slovenskih tržnih kmetij, vključenimi v našo raziskavo (N = 273), prevladujeta sidri varnosti in stabilnosti ter življenjskega sloga. Obe sta značilni za osebe, ki iščejo stabilno in 'predvidljivo delo', ki hkrati nudi tudi relativno trajno delovno razmerje (kar kmetovanje samo po sebi nesporno nudi oziroma zahteva). Bolj jih zanima delo samo po sebi kot pa njegova vsebina. Izražajo željo po delu, ki predstavlja hkrati njihov življenjski stil: kako učinkovito usklajevati lastne potrebe, potrebe družine in kariere. Pomembno jim je, da imajo ob pravem času na voljo prave možnosti (npr. prilagodljiv delovni čas). Rezultati tudi kažejo, da slovenski kmetje razumejo svoje delo kot sestavni del življenja, ga zaradi same narave dela v kmetijstvu spretno vključujejo v svoj način življenja, manj pa ga dojemajo kot izziv in priložnost za spremembe in napredek.

Zanimive so tudi ugotovitve, ki so povezane z usmeritvijo kmetije v ekološko oziroma konvencionalno pridelavo. Pri anketiranih gospodarjih konvencionalnih kmetij je pogosteje prisotno menedžersko sidro, ki izraža željo posameznika po vodenju, sprejemanju odgovornosti in odločanju. Ti gospodarji kmetij določeno specializacijo (npr. ekološko usmeritev kmetije) vidijo kot past. Razumejo nujnost poznavanja področij in sprejmejo dejstvo, da morajo biti najprej izvedenci na svojem področju, če hočejo dobro funkcionirati kot direktorji. Na drugi strani se pri gospodarjih ekoloških kmetij pogosteje pojavlja tehnično-funkcionalno sidro, za katerega je značilno, da se posamezniki predajo specializaciji, se povsem poistovetijo z delom in hkrati podcenjujejo funkcije vodenja. Pogosto gre na začetku večine karier za to sidrno usmerjenost in je njihova zgodnja faza skoraj vedno povezana s specializacijo. Glede na dejstvo, da se ekološki način kmetovanja sistematično uveljavlja pri nas šele dobrih 15 let, je takšna slika logična. Posameznikom s tem kariernim sidrom delo pomeni izziv, radi preizkušajo lastne zmožnosti in spretnosti. Pomembna jim je vsebina dela, ne le delo samo po sebi, za svoje delo in rezultate pa potrebujejo oziroma pričakujejo tudi priznanja drugih (kmetov).

Ugotavljamo, da se karierna sidra med gospodarji konvencionalnih in ekoloških kmetij delno razlikujejo. Ker se po Scheinovi teoriji dokončno oblikujejo v prvih desetih letih kariere, lahko predvidevamo, da se bodo sidra mlajših gospodarjev z leti še delno

preoblikovala na osnovi razvoja njihove osebnosti, spremembe vrednot ter izkušenj, ki jih bodo gospodarji pridobivali ob rednem delu na kmetiji ter tudi na širšem trgu. Tako v obdobju oblikovanja sider lahko nanje vpliva posameznikovo ožje okolje (starši oziroma drugi sorodniki, ki se že ukvarjajo s kmetijstvom), regija, v kateri posameznik odrašča (npr. območje z dobrimi pridelovalnimi možnostmi, kot sta Pomurska ali deloma Podravska statistična regija), ter tudi širše okolje (npr. informacije iz medijev, izobrazba idr.), iz katerega posameznik dobiva določene spodbude za oblikovanje svojih stališč, vrednot, pričakovanj in načrtov glede nadaljnje usmerjenosti njegove kmetije.

Zanimiva je ugotovitev, da je pogled gospodarjev na razvojno prihodnost kmetij (58 % vprašanih meni, da se odpirajo nove možnosti) kljub prevladujočim stabilnejšim in 'varnejšim' kariernim sidrom kar optimističen ter odprt za spremembe in novosti.

Glede na večjo izraženost kariernih sider, ki se povezujejo predvsem z iskanjem občutka varnosti in stabilnosti ter željo po usklajevanju dela in zasebnega življenja ob sočasnem pomanjkanju želje po novih izzivih, menimo, da bi bilo dobro v slovenski izobraževalni sistem bolj sistematično dodajati podjetniške vsebine, pa tudi znanja s področja varovanja okolja, zdravja ipd. Zaradi gospodarskih razmer v Sloveniji (in širše v Evropi) se kar nekaj mlajših odloča za opustitev klasičnih kariernih poti in se usmerjajo tudi na področje kmetijstva, vendar se tega izziva pogosteje lotevajo inovativno in drzno, saj niso obremenjeni niti s predhodno izkušnjo niti s pritiski družine. Zanje bi bilo z vidika oblikovanja ustreznih kariernih sider smiselno uvesti nekakšen način mentorstva oziroma izmenjave informacij. Če želimo, da se bo profil zadovoljnega in uspešnega gospodarja kmetije sistematično razvijal in oblikoval tudi v prihodnje, potrebujemo načrten in organiziran pristop k njihovemu kariernemu razvoju. Ta bi moral vključevati sistematično pridobivanje ustreznih novih znanj, upoštevanje želja, oblikovanje ustreznih vrednot in usmerjanje motivov ter zagotovljeno svetovanje v situacijah, ko gospodar potrebuje pomoč na določenem področju.

Gospodarski razvoj kmetije je pomembno odvisen od gospodarja in njegovih osebnostnih lastnosti. Potrebno je upoštevati, da se njegova karierna usmeritev najbolj oblikuje v prvih desetih letih dela. Hkrati je treba vedeti, da so številni gospodarji na kmetiji vpeti v delo in odločanje na kmetiji že od mladosti in so na nek način bolj kot ostali poklici pod vplivom t. i. ožjega okolja (družine, družinske tradicije), kar pomembno vpliva na njihov osebnostni razvoj.

Spremembe in ukrepe za bolj upravljavsko in inovativno ter konkurenčno naravnanost slovenskega kmeta lahko uvajamo v treh korakih. V prvi fazi je vsekakor pomembno upoštevati zgodnje oblikovanje kariernih sider: na njihovo ustreznejše oblikovanje je smiselno vplivati v okviru izobraževalnega sistema (predvsem na področju formalnega kmetijskega izobraževanja, pa tudi dodatnih kmetijskih izobraževanj). V drugem koraku je pomembno tehnično-funkcionalnemu kariernemu sidru (specializacija, vsebinski razvoj dela kmeta) dodati še menedžersko sidro. To pomeni, da bo kmet ne le dober strokovnjak na svojem področju, ampak bo tudi sposoben vodenja, prevzemanja odgovornosti in iskanja pravih možnosti in rešitev. Tretji in najzahtevnejši korak pa pomeni povečanje sposobnosti posameznega kmeta pri premagovanju ovir (npr. neprestane zakonodajne spremembe, spreminjajoče tržne zakonitosti, podnebne spremembe, ki izrazito vplivajo na kmetijski sektor ipd.), zmožnost iskanja priložnosti, ki se porajajo, hkrati pa

biti pripravljen (v razumnih mejah) nekoliko več tvegati in biti pripravljen (in odziven) na hitre spremembe. Na tem mestu velja opozoriti na najnovejše izsledke antropologinje Knežević Hočevarjeve (2015), ki je v raziskavah med kmeti severovzhodne Slovenije, ki se ukvarjajo z intenzivnim kmetovanjem, prepoznala tveganje in negotovost pri odločanju kot ustvarjalni sili njihovega pozicioniranja v skupnosti, (samo)opredeljevanja, socialnosti, oziroma kot zaviralna dejavnika, ki tlakujeta strah pred neuspehom.

Prepoznano vlogo gospodarjev na kmetiji smo desetletja vrednotili le s podatki o njihovi starosti, izobrazbi in formalni kmetijski izobrazbi. Stopnja izraženosti kariernih sider pri posamezniku nam daje dodatne informacije oziroma vpogled v njegovo osebnost, kar se neposredno in posredno vsakodnevno odraža pri njegovem vedenju, npr. na kakšen način gospodar kmetije sprejema odločitve, se odloča za širitev dejavnosti, načrtuje aktivnosti, upravlja finance in se odloča za sodobne metode kmetovanja.

Opomba

Projekt *Ekonomika ekoloških kmetij v Sloveniji* (V7-1118), ki se je izvajal v okviru Ciljnega raziskovalnega programa v obdobju 2011–2013, sta sofinancirala Ministrstvo za kmetijstvo, gozdarstvo in prehrano ter Javna agencija za raziskovalno dejavnost Republike Slovenije.

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SAFETY, STABILITY AND LIFESTYLE: DOMINANT CAREER ANCHORS AMONG THE HEADS OF SLOVENIA'S MARKET ORIENTATED AGRICULTURAL HOLDINGS

Summary

The main purpose of the survey was to identify the key personal characteristics of market-oriented farmers (heads of agricultural holdings) in Slovenia. The survey used career anchors as measuring parameters because these comprise most of the personal characteristics and traits required to describe the heads of agricultural holdings. Another objective of the survey was to research and describe the role of career anchors in the development of agricultural holdings, as well as to identify the differences between conventional and organic farmers.

The survey included 273 heads of agricultural holdings in Slovenia, of whom 169 were engaged in conventional farming and 104 in organic farming. We included agricultural holdings that qualified as market-oriented, at least in certain segments, because the development of this sector is strongly linked to agriculture's production role. The Target research programme survey *Economics of organic farming in Slovenia* included separate questionnaire which, through the use of dominant career anchors, helped describe the personal characteristics of heads of agricultural holdings. The seven career anchors were as follows: the technical-functional anchor, managerial anchor, autonomy and independence anchor, security and stability anchor, mission and devotion anchor, challenge anchor and lifestyle anchor. The survey also garnered basic information from farmers on the characteristics of the agricultural holdings and their heads. The heads were asked for their views on the future of their agricultural holdings and were then requested to evaluate their personal satisfaction with the performance of their holdings.

The results reveal that the career anchor most commonly expressed by heads of market-oriented agricultural holdings was the security and stability anchor, followed by the lifestyle anchor and the autonomy and independence anchor. Heads of agricultural holdings generally seek jobs that provide long-term safety coupled with stable and predictable working conditions. The technical-functional anchor was referred more often among heads of organic agricultural holdings. This anchor typically encourages farmers to develop a high level of expertise in their particular area and underlines the importance of the technical and substantive aspects of their work. Both of the groups surveyed also made frequent references to the lifestyle anchor, which reflects a desire to evolve a healthy balance between work and private life. The fewest references were found to be made to the challenge anchor, which generally indicates that the heads of agricultural holdings feel little need to be challenged. They rarely aspire to venture into new areas or try new working methods.

The survey also shows that heads of agricultural holdings are optimistic about the future development of their farms. Despite the dominance of the stability and security career anchors, 58% of the respondents reported seeing new development opportunities for their holdings. Slovenian farmers consider their work to be an integral part of their lives. The very nature of farming requires them to integrate this activity skillfully in their lifestyles, and they see it less as a challenge or an opportunity for change and progress.

The implementation of the changes and measures required for Slovenian farmers to adopt a more managerial, innovative and competitive approach can be achieved in three steps. In the first step, it is vital to take into account the early formation of career anchors and to achieve that career anchors are better integrated within the framework of the educational system, particularly in the areas of formal and supplementary agricultural education. In the second step, the technical-functional anchor (which covers specialisation and the substantive development of a farmer's work) must be combined with the managerial anchor. This means that a farmer not only has to possess a high level of expertise in his area of work, but also managerial skills and the ability to assume responsibility and find the right opportunities and solutions. The third and most demanding step is to increase the farmers' ability to deal with obstacles. Constant changes to legislation, the ever-changing laws of the market and climate changes have a significant impact on the agricultural sector. Farmers should seek new, emerging opportunities, and at the same time to be prepared, within reason, to assume more risks and respond adequately to rapid change.

(Translated by Amidas, d.o.o.)

VPLIV UČINKA POZNANSTVA IN SOSEDSTVA NA VOLILNO VEDENJE V VOLILNEM OKRAJU TOLMIN

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Izvirni znanstveni članek
COBISS 1.01
DOI: 10.4312/dela.44.2.25-43

Izvleček
Članek analizira vpliv učinka poznanstva in sosedstva na volilno vedenje na primeru volilnega okraja Tolmin. S statističnimi in kartografskimi analizami rezultatov državnozborskih volitev iz let 2008 in 2011 smo prikazali rezultate dvanajstih kandidatov. Potrjenih je bilo več primerov šibkega oziroma zmernega vpliva preučevanega učinka na volilno vedenje, prostorska razporeditev podpore kandidatom pa je odsevala razlike med mestnimi in podeželskimi območji ter vpliv lokalnih posebnosti (medsosedsko rivalstvo, gravitacijska zaledja, funkcije kandidatov) na volilno vedenje.

Ključne besede: politična geografija, geografija volitev, volitve, volilno vedenje, učinek poznanstva in sosedstva, Tolmin, Slovenija

THE IMPACT OF FRIENDS-AND-NEIGHBOURS EFFECT ON ELECTORAL BEHAVIOUR IN THE TOLMIN ELECTORAL DISTRICT

Abstract
This paper discusses the impact of friends-and-neighbours effect on results of Slovenian parliamentary elections in 2008 and 2011. Its impact on electoral behaviour has been verified by statistical and cartographic analyses of election results in the Tolmin electoral district. Some cases with weak or moderate impact of analysed phenomena were proven, while spatial distribution of candidates support signalled the differences between urban and rural areas and impact of local specifics (neighbourhood rivalry, gravitation hinterland, career position of candidates) on electoral behaviour.

Key words: political geography, electoral geography, elections, electoral behaviour, friends-and-neighbours effect, Tolmin, Slovenia

I UVOD

Volilna pravica, s katero lahko ljudstvo namesti ali odstrani vladajočo strukturo v parlamentu, je najbolj temeljna med pravicami državljana (Jones, Woods, 2004). Ljudstvo izraža svojo voljo na periodično izvedenih volitvah. V prispevku je pozornost namenjena slovenskim državnozborskim volitvam, ki hkrati služijo kot zgled pri določanju volilnega sistema volitev na regionalni in lokalni ravni. 90 poslanskih mest v Državnem zboru Republike Slovenije se deli po proporcionalnem volilnem sistemu, ki za razliko od večinskega omogoča uspeh večjemu številu političnih strank. Te na volitvah nastopajo z lokalnimi kandidati, ki so razporejeni med 88 volilnih okrajev; toliko je tudi predvidenih poslanskih mest, saj sta preostala dva mandata rezervirana za predstavnika narodnih manjšin (ZVDZ, 1992; Rogelj, 2012).

Podrobnejši vpogled v slovenski volilni sistem razkriva specifičen paradoks. Prebivalstvo voli lokalne kandidate, njihov glas pa prvenstveno služi razdelitvi mandatov med politične stranke in zagotavlja le posredno podporo izbranemu kandidatu, ki mora za preboj v parlament zabeležiti dovolj dober rezultat v internem boju s preostalimi kandidati svoje stranke (ZVDZ, 2006; Rogelj, 2012). Ker tovrsten volilni sistem postavlja v ospredje boj med strankami in potiska izbiro posameznih lokalnih kandidatov v drugi plan, je pričakovati, da bo vodilni kriterij odločanja volilnega telesa temeljil na simpatiziranju s strankarskimi programi.

Vendar na volilno vedenje vpliva širok spekter dejavnikov, zaradi katerih lahko rezultati volitev močno odstopajo od pričakovanj. To dokazujeta tudi primera slovenskih državnozborskih volitev leta 2011 in leta 2014, ko sta najboljši rezultat zabeležili stranki, ki sta bili ustanovljeni le nekaj mesecev pred volitvami. Ker je Slovenija sorazmerno majhna država, je mogoče pričakovati večji vpliv lokalnih posebnosti na volilno vedenje.

Prispevek analizira pojav, ki se v angleški strokovni literaturi označuje s terminom *friends-and-neighbours effect* in se opredeljuje kot težnja volilnega telesa, da svoj glas dodeli kandidatu, ki prihaja z domačega območja (Simiyu, 2010). Opisani pojav v slovenskem kontekstu še ni bil podrobneje raziskan; interpretira se lahko kot *učinek poznanstva in sosedstva*.

Raziskava obsega kvantitativno in prostorsko analizo rezultatov državnozborskih volitev v letih 2008 in 2011. Ugotavljali smo jakost vpliva učinka poznanstva in sosedstva na volilno vedenje v tolminskem volilnem okraju, ki vključuje občine Tolmin, Kobarid in Bovec. Delo je obsegalo pregled literature o učinku poznanstva in sosedstva, pripravo in urejanje rezultatov volitev, pripravo prostorskih podatkov o voliščih in njihovi medsebojni oddaljenosti, statistično analizo podatkov in kartografski prikaz razporeditve podpore posameznim kandidatom.

V ospredju raziskave so bila tri tematska žarišča:

- merjenje prisotnosti pojava učinka poznanstva in sosedstva ter vrednotenje njegovega vpliva na volilno vedenje;
- primerjava intenzitete pojava med kandidati glede na njihov izvor (mesto ali podeželje);
- vzroki, ki vplivajo na specifično prostorsko razporeditev podpore posameznim kandidatom.

2 UČINEK POZNANSTVA IN SOSEDSTVA

Na volilno vedenje vpliva širok spekter dejavnikov, ki jih Pečjak (1995, str. 180) v grobem deli na štiri skupine. Najpomembnejšo vlogo namenja societalnim dejavnikom, kamor spadajo verska, etnična in rasna pripadnost, spol, starost in poklic volivca. Globalizacija, urbanizacija in splošno širjenje obzorij pri percepciji okolice postopoma zmanjšujejo pomen teh dejavnikov, na pomembnosti pa pridobivajo propagandni in osebnostni dejavniki. Prvi izhajajo iz volilne kampanje, ki ima največji vpliv na neodločen del volilnega telesa, medtem ko osebnostni dejavniki temeljijo na osebnostnih značilnostih posameznih kandidatov, ki niso nujno povezani s programom njihovih strank. Zadnja skupina predstavlja sistemske dejavnike, ki so bolj tehnične narave in obsegajo omejevanje volilne pravice, trajanje kampanje in druge značilnosti volilnega postopka.

Nekateri avtorji (Luthar, 1993; Simiyu, 2010; Tiran, 2010) izpostavljajo še dve skupini dejavnikov: sociološke in geografske. Prvi izražajo pomen položaja posameznika v družbi, njegovih vsakodnevnih stikov z okolico, položaja na delu in življenjskega stila pri oblikovanju volilnega vedenja. Drugi izhajajo iz značilnosti prostora, ki nikakor ni le podlaga družbenim procesom, pač pa je s povratnimi reakcijami njihov aktivni del. Primer geografskega dejavnika je učinek soseščine (ang. *neighbourhood effect*), ki se kaže v prilagajanju posameznika težnjam okolice ne glede na njegov osebni položaj. S prostorskimi podatki je mogoče pojasniti tudi učinek poznanstva in sosedstva, ki se kaže v korelaciji med višanjem podpore kandidatu s približevanjem njegovemu domačemu volišču.

Učinek poznanstva in sosedstva se odraža v podpori kandidatom z domačega območja in to ne glede na njihovo strankarsko pripadnost. Pri pojasnjevanju tega pojava izhajamo iz predpostavke, da fizična bližina predstavlja podlago za razvoj socialne bližine. Volivci bolje poznajo domače kandidate, jim pripisujejo večjo dovzetnost za lokalno problematiko ter z njimi delijo podobne interese (Simiyu, 2010). Kandidatom zaupajo, da se bodo na državni ravni zavzeli za odločitve, ki bodo neposredno koristile tudi njim. Poleg občutka volivcev, da bodo z izvolitvijo 'domačega' kandidata dejansko nekaj pridobili tudi sami, lahko razlogi za odklon od pričakovanega volilnega vedenja izhajajo tudi iz težav 'nedomačih' kandidatov. Poleg nepoznavanja lokalnih problematik imajo lahko težave že z izgovorjavo krajevnih imen, uporabo tujega narečja ali zaradi priimka, ki nakazuje na tuj izvor (Gimpel, 2008).

Osebno poznavanje velja za enega pomembnejših vzrokov podpiranja domačih kandidatov. Gre predvsem za poznavanje osebnosti in kvalitet kandidata, ki s tem postane bolj 'človeški' od ostalih imen na glasovnici. Poleg tega se pri volivcih ustvari notranji občutek dolžnosti, da podprejo kandidata, s katerim so v vsakodnevnih stikih (Johnston, 1974; Taylor, Johnston, 1979).

Še pomembnejši dejavnik je zaupanje v kandidata. Prav vsakodnevni stiki dajejo volilnemu telesu nekakšno zagotovilo, da bo njihov izbranec moral za svoja dejanja osebno odgovarjati, kar vzbuja veliko višjo mero zaupanja v primerjavi s kandidati, ki jih volivci ne poznajo. Poznanih je tudi več podrobnosti iz kandidatovega preteklega udejstvovanja, nekateri volivci pa so morda z njim v preteklosti že sodelovali, zato mu pripisujejo večjo kredibilnost.

Upoštevati je potrebno tudi osebni interes volivcev. Ti razmišljajo potrošniško in vsako svojo odločitev pogojujejo z lastno koristjo. Bolj kot preučevanje obče kakovosti programa stranke se jim poraja vprašanje, kaj bodo sami pridobili v primeru zmage znanega kandidata. Od lokalnega kandidata se zato pričakuje, da bo poskrbel za probleme v domačem okolju, čeprav to morda ni del programa njegove stranke (Gimpel, 2008).

Takšnemu načinu razmišljanja se vsaj nekoliko prilagaja tudi volilna kampanja strank, ki spretno izkorišča lokalne interese in se med posameznimi lokalnimi kandidati razlikuje; v odnosu do lokalnih problemov včasih celo nasprotuje svojim osnovnim programskim načelom. S tovrstnim promoviranjem poznavanja in skrbi za lokalne interese se možnost učinka poznanstva in sosedstva znatno poveča (Johnston, 1974; Key, 1949).

Nenazadnje je pomembna tudi politična situacija v državi. Podpora domačim kandidatom izhaja iz pomanjkanja stabilnih in dobro organiziranih političnih frakcij podobno mislečih državljanov, ki bi na državni ravni zastopali in zagovarjali ukrepe v skupnem interesu (Key, 1949). Takšna situacija vzbuja neodločnost in skrb za lasten interes. Prav tako lahko vzrok iščemo v neizraziti strankarski delitvi. Če je na političnem prizorišču večje število strank, med programi pa je težko potegniti jasne ločnice, je verjetnost učinka poznanstva in sosedstva veliko večja kot pri izrazito bipolarni politični delitvi, kjer igra strankarska pripadnost odločilno vlogo pri odločanju.

Med izrazito geografskimi vzroki velja izpostaviti še tip naselja. V urbaniziranih okoljih se prebivalci med seboj slabo ali sploh ne poznajo, niti ni prisotne medsebojne povezanosti in podpiranja pri udejstvovanju. Velikokrat se tudi zgodi, da je med kandidati več prebivalcev istega mestnega okolja, kar pomen poznanstva in sosedstva dodatno zmanjšuje. Na drugi strani je socialna homogenost obrobnih območij veliko večja, ljudje se med seboj dobro poznajo in so si navajeni pomagati. Posamezna podeželska naselja se sicer redkeje srečujejo s priložnostjo, da imajo na volitvah domačega predstavnika, ko pa se to vendarle zgodi, praviloma podprejo domačina (Gimpel, 2008).

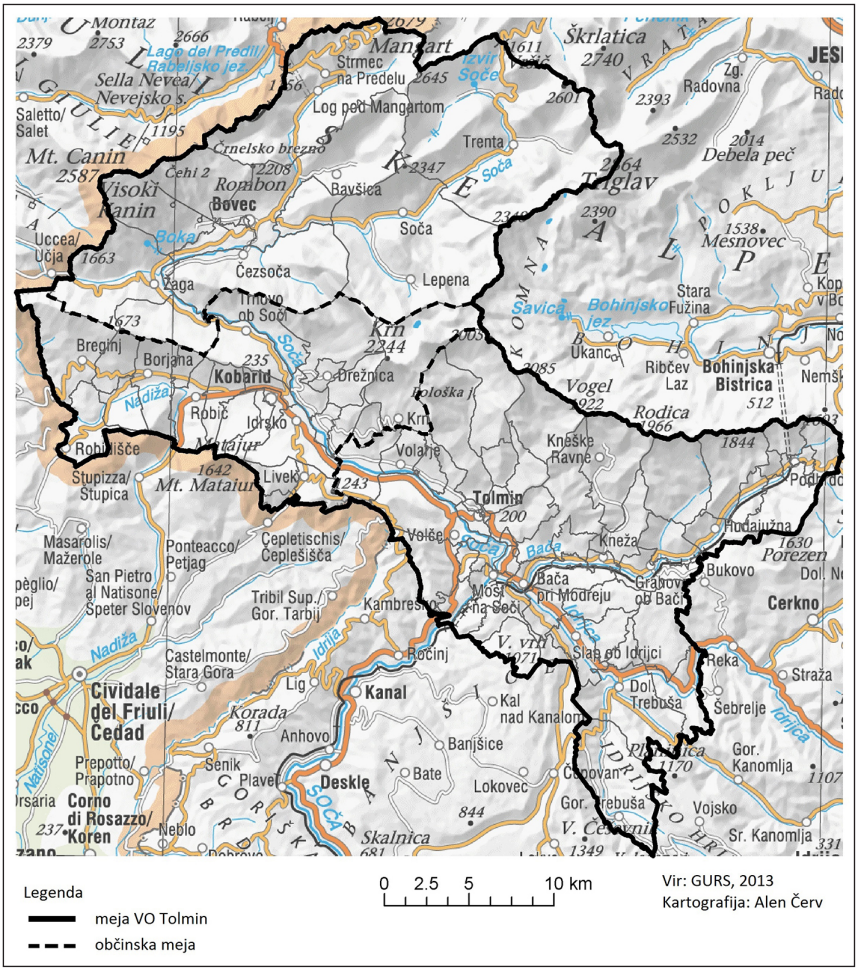
3 METODE

Učinek poznanstva in sosedstva se statistično kaže v negativni korelaciji med deležem prejete podpore na posameznem volišču in njegovo oddaljenostjo od kandidatovega domačega volišča. Analiza temelji na rezultatih državnozborskih volitev iz let 2008 in 2011 po voliščih v volilnem okraju (VO) Tolmin ter podatkih o stalnem bivališču kandidatov. Omenjene podatke smo pridobili na spletni strani Državne volilne komisije (DVK-RS, 2013). Volišča so najmanjša administrativna prostorska enota, za katero se zbirajo podatki o volilnih rezultatih.

VO Tolmin smo za preučevanje izbrali, ker z obrobno lego ustreza predpostavki o favoriziranju lokalnih kandidatov zaradi strahu pred zapostavljenostjo (Červ, 2014). Redka poselitev in socialna homogenost območja bi morali botrovati tesnejšim vezem in boljšemu medsebojnemu poznavanju lokalnega prebivalstva, kar po dosedanjih raziskavah povečuje vpliv učinka poznanstva in sosedstva (Gimpel, 2008; Taylor, Johnston, 1979). Relativno majhno in funkcijsko zaokroženo območje je omogočalo natančnejšo analizo volilnih rezultatov posameznih kandidatov.

Domače volišče kandidata je izhodiščna točka za analizo učinka poznanstva in sosedstva. Določal ga je naslov stalnega bivališča kandidatov, kar sicer zanemarja nekatere dejavnike, kot so npr. čas bivanja, kraj bivanja kandidatovih sorodnikov, kraj zaposlitve itd. Kljub temu ocenjujemo, da gre za metodološko najboljšo možno rešitev, ki jo dostopni podatki še omogočajo. Pri kandidatih s stalnim bivališčem v mestih, ki so razdeljena na več volišč, smo volišča za potrebe analize združili, saj so naselja Tolmin, Kobarid in Bovec po številu prebivalcev in prostorsko premajhna, da bi lahko pričakovali razlike v volilnem vedenju med posameznimi mestnimi četrtmi.

Slika 1: Volilni okraj Tolmin
Figure 1: Tolmin electoral district



Vir/Source: GURS, 2013b

V analizo smo vključili le kandidate parlamentarnih strank. S tem smo se v veliki meri izognili primerom premajhnega deleža prejete podpore, ki bi vplivali na statistično pomembnost končnih rezultatov. Na obeh volitvah se je v Državni zbor uspelo prebiti sedmim strankam. Ker so bili iz analize izključeni tudi kandidati s stalnim bivališčem izven preučevanega VO, je za statistično in kartografsko analizo prostorske razporeditve prejete podpore ostalo dvanajst primerov.

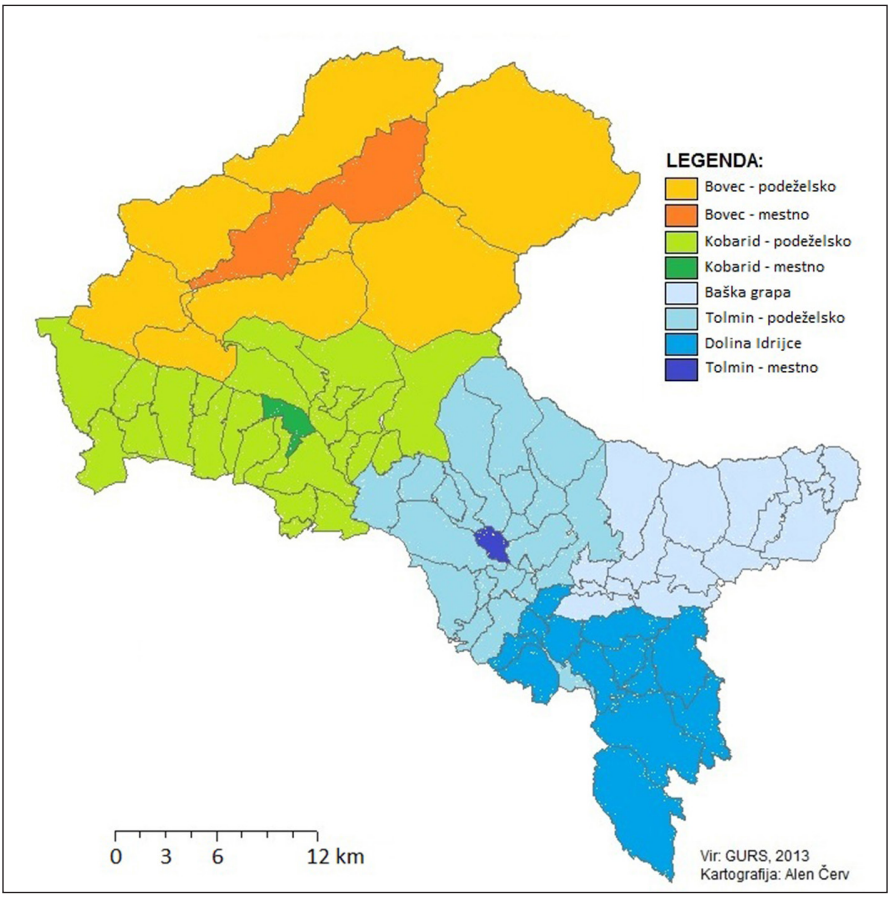
Preglednica 1: Rezultati parlamentarnih volitev v Sloveniji iz let 2008 in 2011
Table 1: Results of Slovenian parliamentary elections in 2008 and 2011

Rezultati parlamentarnih volitev 2008						
Kandidatna lista	**Št. glasov (Slovenija)**	**Delež glasov (%)**				
		Slovenija	**VO Tolmin**	**Občina Tolmin**	**Občina Kobarid**	**Občina Bovec**
SD	320.248	30,45	23,99	24,80	18,52	26,09
SDS	307.735	29,26	38,40	32,50	51,24	44,15
Zares	98.526	9,37	5,55	5,20	5,83	5,82
DeSUS	78.353	7,45	9,01	9,04	7,38	11,76
SNS	56.832	5,40	3,92	4,20	4,35	3,00
SLS	54.809	5,21	9,08	13,62	3,23	2,28
LDS	54.771	5,21	2,47	2,38	2,51	2,28
Rezultati parlamentarnih volitev 2011						
Kandidatna lista	**Št. glasov (Slovenija)**	**Delež glasov (%)**				
		Slovenija	**VO Tolmin**	**Občina Tolmin**	**Občina Kobarid**	**Občina Bovec**
PS	314.273	28,51	17,58	18,50	15,84	18,12
SDS	288.719	26,19	31,99	27,76	43,36	36,97
SD	115.952	10,52	10,47	11,66	6,75	10,73
DLGV	92.282	8,37	8,39	9,18	6,28	9,39
DeSUS	76.853	6,97	6,62	7,21	5,57	6,61
SLS	75.311	6,83	6,35	7,77	5,06	4,30
NSi	53.758	4,88	6,65	6,87	8,29	3,52

Vir/Source: DVK-RS, 2013

Analiza rezultatov je razdeljena na tri sklope. V prvem delu je VO Tolmin razdeljen na mestna in podeželska območja. Primarna delitev izhaja iz upravne delitve na občine. Posamezna volišča znotraj mest smo združili, podeželsko okolico pa razdelili glede na gravitacijska središča, naravnogeografske značilnosti in upravno delitev na šolske okoliše. Tako smo pridobili vmesno prostorsko enoto med VO in posameznimi volišči (slika 2). Za začetno oceno smiselnosti nadaljnje raziskave smo opravili primerjavo podpore kandidatu na njegovem domačem volišču, na domačem mestnem/podeželskem območju in na celotnem območju VO. Hkrati smo ugotavljali tudi razlike v vplivu učinka poznanstva in sosedstva med rezultati kandidatov iz mestnih območij in tistih s stalnim prebivališčem na podeželju.

Slika 2: Delitev tolminskega volilnega okraja na mestna in podeželska območja
Figure 2: Division of the Tolmin electoral district into urban and rural areas



Vir/Source: GURS, 2013b

V drugem delu smo se osredotočili na natančno statistično analizo korelacije med deležem prejete podpore in oddaljenostjo od domačega volišča. Rezultatom volitev je bilo potrebno dodati še prostorsko komponento. S pomočjo programske opreme *ArcGIS* smo vsakemu volišču določili geometrično središče in izračunali evklidsko razdaljo do vseh ostalih volišč. Postopek ni najbolj natančen, vendar v večini primerov zagotavlja normalno porazdelitev spremenljivke, kar je pogoj za izvajanje statističnih analiz. Zaradi večje reprezentativnosti rezultatov smo uporabili še drugo metodo izračuna razdalje. S pomočjo katastra stavb (GURS, 2013c) smo določili središča volišč glede na največjo gostoto stavb, ki na pretežno podeželskih območjih, kot je primer Tolminskega, v glavnem nakazuje največjo gostoto poselitve. Tudi evklidsko razdaljo smo zamenjali s stroškovno,

ki smo jo izračunali glede na premagane naklone (GURS, 2013a). Takšni podatki v veliko večji meri sledijo realnim dnevnim selitvenim tokovom prebivalstva in zato bolj odsevajo vsakodnevne življenjske prakse, ki so izhodišče preučevanega vpliva na volilno vedenje.

Obe vrsti podatkov o razdaljah med volišči smo primerjali z deležem prejetih glasov. Iskali smo morebitno statistično pomembno negativno korelacijo, ki bi bila močan argument za potrditev teze o vplivu učinka poznanstva in sosedstva. Za preverjanje korelacije med posameznimi pari spremenljivk smo izbrali Pearsonov koeficient korelacije. Ta je za potrebe izvedene analize najprimernejši, saj je posebej namenjen številskim (intervalnim ali razmernostnim) spremenljivkam in poleg statistične pomembnosti korelacije kaže tudi jakost povezanosti in njeno smer (pozitivno ali negativno).

Pred izračunom koeficienta je bilo potrebno preveriti pogoje za izvedbo izračuna – normalno porazdelitev spremenljivke, linearno povezanost in homogenost varianc. Pri upoštevanju evklidske razdalje je bilo potrebno opraviti selekcioniranje podatkov (izločitev enot, ki so najbolj odstopale) ali transformacijo spremenljivke (izračun kvadratnega korena podatkov), da je bilo zadoščeno pogojem. Pri tem je bilo treba podatke enega kandidata izločiti, saj je bil delež volišč, na katerih ni prejel niti enega glasu, prevelik. Ob vključitvi stroškovne razdalje je prišlo do težave, saj je bilo nemogoče doseči pogoj normalne razporeditve spremenljivke na ravni testa Kolmogorov-Smirnov. Rezultate omenjenega testa je bilo treba zanemariti in izhajati iz zadovoljive mere normalnosti porazdelitve, ki se je izražala na razsevnih, Q-Q in Boxplot grafikonih razporeditve posameznih spremenljivk.

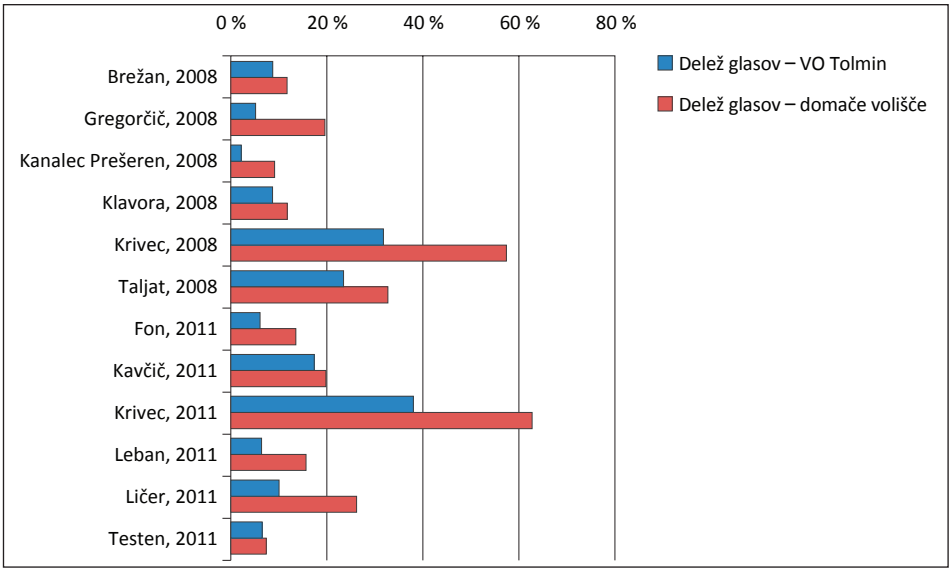
Zadnji del analize predstavlja kartografski prikaz, ki daje boljši vpogled v prostorsko razporeditev prejetih glasov posameznega kandidata. Za optimalno preglednost smo izračunali indeks deleža prejete podpore – razmerje med deležem podpore na kandidatovem domačem volišču in skupnim deležem podpore na območju VO Tolmin (vrednosti, večje od ena, predstavljajo nadpovprečen izid in obratno). Poleg iskanja vzorcev učinka poznanstva in sosedstva so nam kartografski prikazi omogočili analizo posebnosti v razporeditvi podpore, ki nakazuje lokalne posebnosti volilnega vedenja. Podatki o posameznih kandidatih (življenjepis, delovno mesto, družbeni položaj itd.) so nam pomagali razjasniti zapleten pojem volilnega vedenja, ki izhaja iz širokega spektra najrazličnejših dejavnikov.

4 REZULTATI

4.1 Statistična analiza rezultatov volitev

V prvi fazi analize učinka poznanstva in sosedstva na volilno vedenje smo deleže prejete podpore na domačem volišču primerjali s prejeto podporo v VO. Pričakovano je vseh 12 kandidatov beležilo višjo podporo na domačem volišču. Največje razlike so se pokazale na voliščih z majhnim številom volilnih upravičencev, saj gre za podeželska naselja, kjer so poznanstva močnejša, prebivalstvo pa načeloma složnejše pri svojih odločitvah (Gimpel, 2008).

Slika 3: Primerjava prejete podpore na domačih voliščih kandidatov in na območju celotnega VO
Figure 3: Comparison of received support in candidate's domestic polling station with overall support in the electoral district



Vir/Source: DVK-RS, 2013

Drugi korak je vključeval primerjavo rezultatov glede na izvor kandidatov. Razlike med kandidati s stalnim bivališčem v mestih in tistimi, ki prihajajo s podeželja, niso bile velike. Pri razmerju med deležem glasov na domačem območju (določen z že obrazloženo delitvijo na mestna in podeželska območja) in skupnim deležem je bil količnik pri kandidatih iz mestnih območij celo višji (1,28 : 1,16). Večja razlika se je pokazala pri primerjavi skupne podpore s podporo na domačem volišču. Tu je razmerje v prid domačih volišč kandidatov s podeželskih območij naraslo na 2,26, medtem ko so bila volišča v mestih združena in je vrednost ostala na 1,28. Na tej stopnji je bilo mogoče predpostavko o močnejšem učinku poznanstva in sosedstva pri kandidatih s podeželja pogojno potrditi.

Preglednica 2: Primerjava razmerja prejete podpore na mestnih in podeželskih območjih
Table 2: Comparison of received support ratio between urban and rural areas

Podatki o kandidatu		**Razmerje deležev glasov**	
Ime kandidata (stranka)	**Domače območje**	**Domače območje: volilni okraj**	**Domače volišče: volilni okraj**
Danijel Krivec (SDS)	Bovec – podeželsko	1,26	1,64
Anica Kanalec Prešeren (LDS)	Tolmin – podeželsko	0,99	3,77
Uroš Brežan (SLS)	Tolmin – podeželsko	1,34	1,32
Pavel Gregorčič (Zares)	Kobarid – podeželsko	1,01	3,6
Simon Leban (DeSUS)	Dolina Idrijce	1,35	2,42
Robert Kavčič (PS)	Kobarid – podeželsko	0,76	1,13
Franc Ličer (SD)	Dolina Idrijce	1,06	2,52
Danijel Krivec (SDS)	Bovec –- podeželsko	1,26	1,81
Metod Fon (SLS)	Tolmin – podeželsko	1,45	2,15
Povprečno razmerje – PODEŽELSKA OBMOČJA		**1,16**	**2,26**
Ciril Testen (NSi)	Tolmin – mestno	1,15	1,15
Vasja Klavora (DeSUS)	Bovec – mestno	1,32	1,32
Dragica Rejec Taljat (SD)	Tolmin – mestno	1,37	1,37
Povprečno razmerje – MESTNA OBMOČJA		**1,28**	**1,28**
Povprečno razmerje – SKUPAJ		**1,19**	**2,02**

Vir/Source: DVK-RS, 2013

Povezanost med deležem podpore in oddaljenostjo od domačega volišča je v dosedanjih raziskavah učinka poznanstva in sosedstva tujih strokovnjakov največkrat navedena kot relevanten znanstveni kazalec jakosti vpliva na volilno vedenje (Gimpel, 2008). Ob upoštevanju evklidske razdalje je Pearsonov koeficient v sedmih primerih (64 % vseh obravnavanih) pokazal statistično pomembno negativno korelacijo, ki je bila pri petih kandidatih nizke jakosti, pri dveh pa celo srednje. Z zamenjavo evklidske s stroškovno razdaljo, ki smo ji pripisali večjo reprezentativnost dejanskega stanja, se je statistično pomembna negativna korelacija potrdila v petih primerih (46 % vseh obravnavanih). Poleg dejstva, da se je delež dokazanih korelacij zmanjšal, je pomembno dodati, da je bil rezultat v 82 % primerov enak kot pri evklidski razdalji (preglednica 3), kar daje prvotnemu izračunu, kjer so vsi pogoji za izračun koeficienta izpolnjeni, dodatno težo.

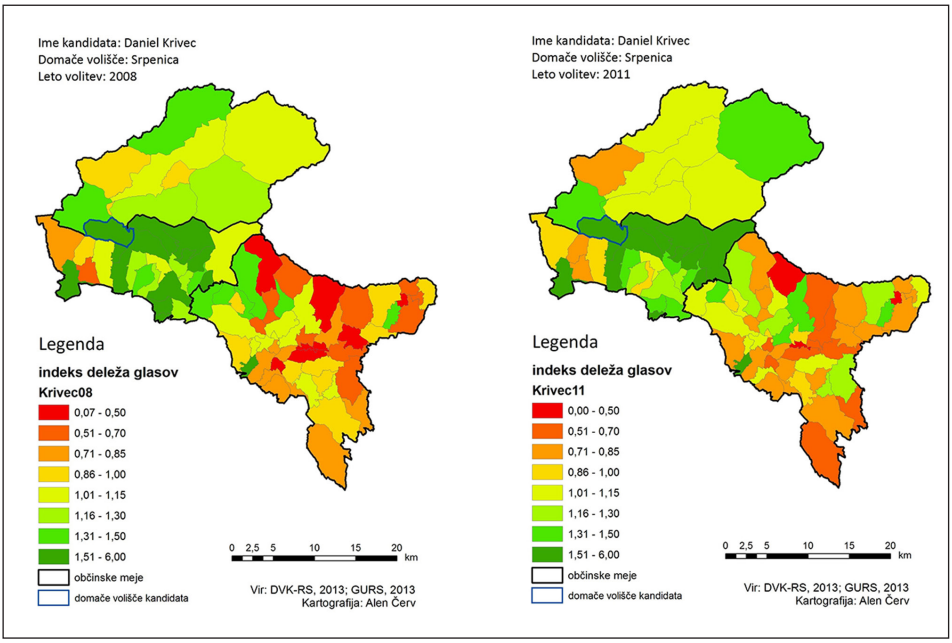
Preglednica 3: Pearsonov koeficient korelacije med deležem glasov in razdaljo od domačega volišča kandidata
Table 3: Pearson correlation coefficient between received support and distance from the candidates' local poll

Kandidat, leto volitev	Korelacija podpore z evklidsko razdaljo			Korelacija podpore s stroškovno razdaljo		
	Stat. pomembnost korelacije (Sig.<0,05)	Vrednost Pearsonovega koeficienta	Smer in jakost korelacije	Stat. pomembnost korelacije (Sig.<0,05)	Vrednost Pearsonovega koeficienta	Smer in jakost korelacije
Brežan, 2008	0,01	–0,29	nizka negativna	0,72	/	ni korelacije
Gregorčič, 2008	0,00	–0,31	nizka negativna	0,03	–0,24	nizka negativna
Klavora, 2008	0,02	0,26	nizka pozitivna	0,04	0,22	nizka pozitivna
Krivec, 2008	0,00	–0,58	srednja negativna	0,00	–0,47	srednja negativna
Taljat, 2008	0,69	/	ni korelacije	0,10	/	ni korelacije
Fon, 2011	0,01	–0,28	nizka negativna	0,03	–0,24	nizka negativna
Kavčič, 2011	0,57	/	ni korelacije	0,20	/	ni korelacije
Krivec, 2011	0,00	–0,54	srednja negativna	0,00	–0,42	srednja negativna
Leban, 2011	0,33	/	ni korelacije	0,36	/	ni korelacije
Ličer, 2011	0,03	–0,23	nizka negativna	0,42	/	ni korelacije
Testen, 2011	0,04	–0,23	nizka negativna	0,01	–0,27	nizka negativna

4.2 Kartografski prikaz indeksa deležev podpore kandidatov

Pri iskanju vzorcev prostorske razporeditve volilne podpore smo uporabili kartografski prikaz indeksa deležev podpore, in sicer primerjavo vrednosti indeksa na posameznih voliščih z njihovo oddaljenostjo od kandidatovega domačega volišča. Posamezne primere specifičnih prostorskih razporeditev smo obrazložili podrobneje.

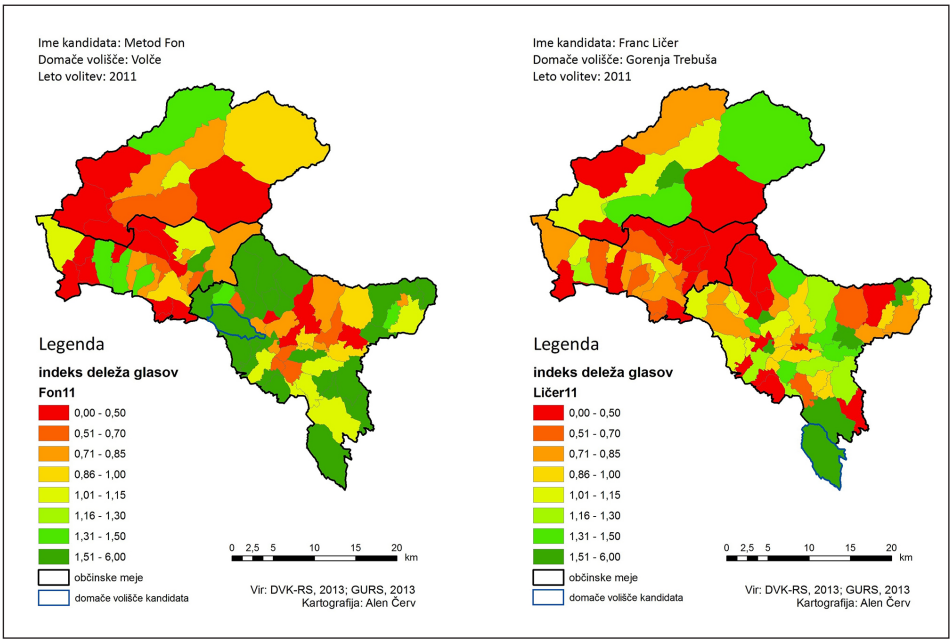
Slika 4: Indeks prejete podpore kandidata Danijela Krivca na volitvah 2008 in 2011
Figure 4: Index of candidate's Danijel Krivec received support in the elections of 2008 and 2011



Vira/Sources: DVK-RS, 2013; GURS, 2013b

Kandidat D. Krivec je kandidiral tako leta 2008 kot 2011 (slika 4). V obeh primerih je Pearsonov koeficient določil negativno korelacijo srednje jakosti. Gre za jasen kazalec učinka poznanstva in sosedstva, saj podpora enakomerno pada z oddaljenostjo. Poleg tega je opaziti močno podporo v smeri najnižje stroškovne razdalje (po dolini reke Soče proti severozahodu in jugovzhodu). V kolikor bi bila večina primerov takšna, bi bila teza o splošnem vplivu učinka poznanstva in sosedstva na volilno vedenje brez težav potrjena. Omeniti velja še opazno razliko v podpori med občinama Tolmin (jugovzhodni del VO) in Kobarid (osrednji del), ki se ji bomo posvetili pri naslednjem primeru.

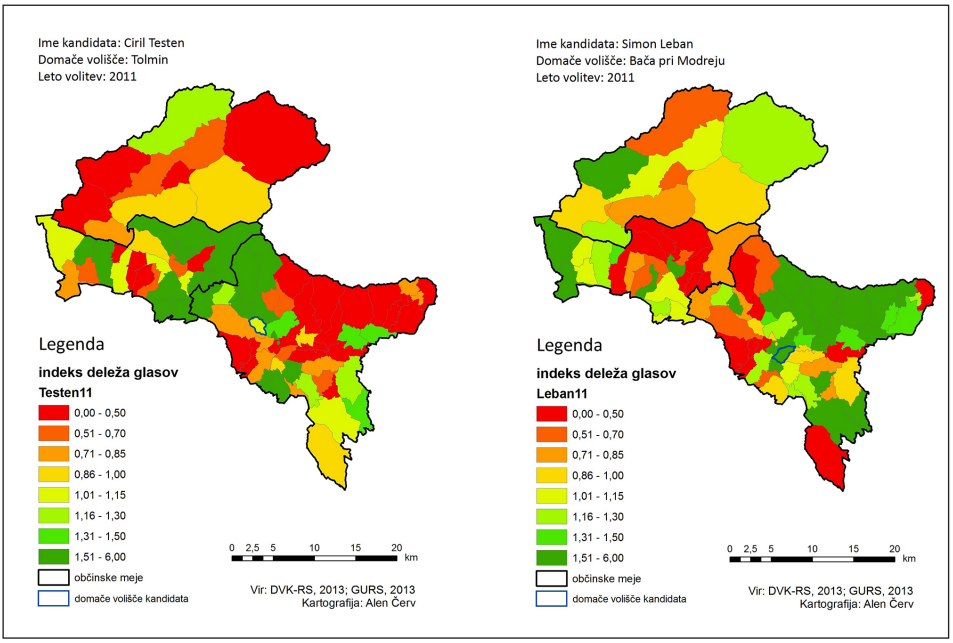
Slika 5: Indeks prejete podpore kandidatov Metoda Fona in Franca Ličerja na volitvah 2011
Figure 5: Index of candidates' Metod Fon and Franc Ličer received support in the election of 2011



Vira/Sources: DVK-RS, 2013; GURS, 2013b

Kandidata M. Fon in F. Ličer prihajata iz tolminskega podeželskega zaledja (slika 5). Pri obeh smo ugotovili negativno korelacijo nizke jakosti, za nas pa sta primera zanimiva predvsem zaradi izrazite razlike v podpori med občinama Tolmin in Kobarid. Oba kandidata beležita daleč najslabše rezultate na območju občine Kobarid, kar bi lahko pripisali medsosedskemu rivalstvu in strahu pred favoriziranjem lastne občine v primeru izvolitve. Gre za obliko učinka soseščine, pri katerem načela okolice vplivajo na odločanje posameznika na zavestni ali podzavestni ravni (Jones, Woods, 2004).

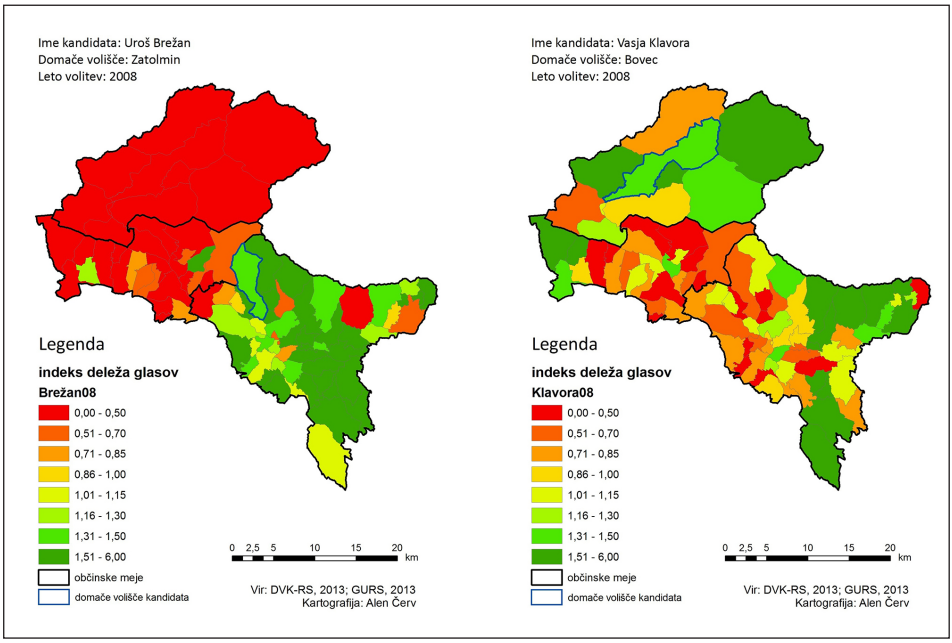
Slika 6: Indeks prejete podpore kandidatov Simona Lebana in Cirila Testena na volitvah 2011
Figure 6: Index of candidates' Simon Leban and Ciril Testen received support in the election of 2011



Vira/Sources: DVK-RS, 2013; GURS, 2013b

Rezultati naslednjih dveh kandidatov nam prikazujejo relativnost pomena evklidske razdalje (slika 6). Na prvi pogled sta si volišči Tolmin (kandidat C. Testen) in Bača pri Modreju (kandidat S. Leban) prostorsko zelo blizu, vendar ju funkcijska razvodnica uvršča v različni gravitacijski zaledji. Izoblikovanost površja je odločilno vplivala na dnevne migracije, število socialnih stikov, mentaliteto in občutek pripadnosti prebivalstva obeh območij. Medtem ko se območje Tolmina odpira po dolini Soče navzgor (smer severozahod), leži Bača pri Modreju na sotočju rek Idrijce (jugovzhodni del VO) in Bače ter spada v območje Baške grape (vzhodni del VO) (Červ, 2014). Prostorska razporeditev podpore z vidika učinka poznanstva in sosedstva jasno prikazuje razdeljenost območja in posledično tudi prebivalstva. Omeniti velja, da je bila izračunana korelacija v obeh primerih zelo šibka, kar dokazuje, da so statistični podatki pri prostorskih problemih samo ena izmed metod, ki pa jo je potrebno dopolniti s kartografsko analizo dejanskega stanja v prostoru.

Slika 7: Indeks prejete podpore kandidatov Uroša Brežana in Vasja Klavore na volitvah 2008
Figure 7: Index of candidates' Uroš Brežan and Vasja Klavora received support in the election of 2008



Vira/Sources: DVK-RS, 2013; GURS, 2013b

Smiselno je navesti še dva primera sekundarnih vplivov na volilno vedenje (slika 7). Pri kandidatu U. Brežanu je bilo opaziti diametralno nasprotje pri podpori na območju občine Tolmin v primerjavi s preostalima občinama. Tokrat ne gre (le) za medsosedsko rivalstvo, pač pa za vpliv funkcije kandidata, ki je bil v času volitev župan občine Tolmin. Združljivost poslanske in županske funkcije, ki jo je slovenska zakonodaja za razliko od večine razvitih držav dovoljevala do leta 2012, je botrovala (upravičenemu) strahu pred favoriziranjem domače občine v primeru preboja v Državni zbor.

Preteklo poklicno udejstvovanje (kirurg, pisatelj ipd.) in aktualna funkcija (podpredsednik Državnega zbora) sta pomembno vplivala tudi na rezultate kandidata V. Klavore, pri katerih smo ugotovili celo pozitivno korelacijo, kar je v popolnem nasprotju s pričakovanji. Gre za vpliv prepoznavnosti in splošne priljubljenosti, ki deluje nasprotno od učinka poznanstva in sosedstva (Jones, Woods, 2004). Primera dokazujeta kompleksnost in lokalne posebnosti volilnega vedenja, ki kljub odvisnosti od poznavanja kandidata ne izhajajo vedno samo iz prostorske bližine. Slednja ima torej na volilno vedenje omejen vpliv.

5 SKLEP

Statistične in kartografske analize so v kombinaciji s teoretičnimi izhodišči o učinku poznanstva in sosedstva dokazale kompleksnost volilnega vedenja. Kljub temu je mogoče iz rezultatov izpeljati številne zaključke, ki bodo v pomoč nadaljnjim analizam. Najprej je potrebno poudariti, da pridobljenih rezultatov ne moremo posplošiti na državno ali katerokoli drugo širšo raven, saj smo analize izvedli na specifičnem, obrobnem območju, ki ima edinstven značaj in nikakor ne more služiti posploševanju. Pri tolminskem volilnem okraju gre namreč za relativno zaprto in socialno homogeno območje z visoko stopnjo medsebojnega poznavanja (Červ, 2014).

Za preučevano območje je mogoče potrditi predpostavko, da podpora kandidatu ne upada enakomerno z oddaljevanjem od domačega volišča, saj na odločitev volilnega telesa vpliva širši splet dejavnikov. Učinek poznanstva in sosedstva na preučevanem območju je močnejši na podeželskih in šibkejši na mestnih območjih. Pri tem je potrebno omeniti, da ima največje naselje v tolminskem volilnem okraju manj kot 5000 prebivalcev in o mestnih središčih z vidika števila stalnega prebivalstva niti ni mogoče govoriti.

Volilna praksa je lokalno specifičen pojav, ki je odvisen od pestrega nabora sekundarnih dejavnikov. Regionalne in lokalne značilnosti, medsosedska rivalstva in vpliv funkcije kandidatov so le nekateri izmed vzrokov za odklone v volilnem vedenju. Pri dojemanju slednjih je poleg geomorfoloških značilnosti potrebno upoštevati tudi administrativne, zgodovinske in gospodarske ločnice v prostoru.

Delovne hipoteze o pomembnem vplivu učinka poznanstva in sosedstva na volilno vedenje na osnovi opravljenih analiz ni mogoče zanesljivo potrditi. Čeprav je bila v 64 % primerov statistično dokazana negativna korelacija med deležem podpore in oddaljenostjo od domačega volišča kandidata, se je potrebno zavedati, da je bila jakost korelacije praviloma nizka. Prav tako je delež tovrstnih primerov po prilagoditvi podatkov na realnejšo raven (zamenjava evklidske razdalje s stroškovno in geometričnih središč s središči gostote stavb) upadel pod polovico. Potrditi pa je mogoče, da se učinek poznanstva in sosedstva kaže v posameznih primerih in bi bilo smiselno opraviti nadaljnje analize tega pojava na širši ravni. Na podlagi navedenih izkušenj predlagamo obtežitev izračunanih razdalj na osnovi občinskih in drugih administrativnih meja, ki vplivajo na razlike v volilnem vedenju prebivalstva. Prav tako bi bilo smiselno z anketiranjem in intervjuvanjem prebivalstva pridobiti globlji vpogled v vzorce odločanja in dejavnike, ki nanje vplivajo. Poleg informativne in znanstvene vrednosti je smisel prispevka tudi spodbuda za nadaljnje raziskave, s katerimi bi lahko izluščili prednosti in slabosti sedanjega volilnega sistema in pomagali soustvarjati morebitne pozitivne spremembe v prihodnosti.

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THE IMPACT OF FRIENDS-AND-NEIGHBOURS EFFECT ON ELECTORAL BEHAVIOUR IN THE TOLMIN ELECTORAL DISTRICT

Summary

The friends-and-neighbours effect refers to the tendency for voters to support candidates from their home areas regardless of party affiliation, apparently because such candidates are better known to them, have a better grasp of local issues, share in local interests and would therefore be more motivated to address local problems if elected (Simiyu, 2010). The impact of described effect was verified by analysis of the results of National Assembly elections in 2008 and 2011 in Tolmin electoral district – one of 88 electoral districts in Slovenia that give 88 members of National Assembly.

We figured out that proportional representation system of elections in Slovenia is focused on the selection of political parties and not local candidates. However, analysis of the results showed significant support for local candidates that could be caused by friends-and-neighbours effect. Due to the complexity of electoral behaviour, which could not be explained solely with statistical parameters, one has to be really careful in interpreting the results.

More than half of analysed results of candidates corresponded to the pattern of friends-and-neighbours effect, but correlations between number of votes and the distance from the candidate's home polling station were weak and they got even weaker when we optimized spatial data. Cartographic presentations also showed drop of support with increasing distance from the domestic polls, but there were also some cases demonstrating the effect of other influences on electoral behaviour. In one case, the connection was even reversed. That was the reason for consideration about specific local factors of electoral behaviour.

First of them is social homogeneity of the area that is really closed and well internally connected. Connections between people are strong and they have a common gravitation centre, but the strength of connections is not related with distance so much. Electorate is familiar (read: knows) with all the candidates and sometimes connections have even negative impacts due to some bad experiences from the past. Next factor is career position of candidates in social life. The best example is Mr. Brežan, who was mayor of the Tolmin municipality at the time of 2008 elections. It was a specific practice in Slovenia, where members of National Assembly were allowed to perform the role of the mayor as well. Among the candidates were also doctors, lawyers and other public servants whose function has affected their popularity among voters. Another local factor is the neighbourhood effect. It occurred as neighbourhood rivalry between Tolmin and Kobarid areas. Cartographic presentations showed significant difference in support between both municipalities in almost all the cases.

After completion of the analysis we can conclude that friends-and-neighbours effect is stronger in rural than in urban areas. It was also confirmed that electoral support does not drop evenly with the distance from domestic polls. Another conclusion is locally specific electoral behaviour with a lot of factors that affect the decision of voters in a particular area. That is the reason we cannot generalize our results to the entire territory of Slovenia.

The main hypothesis of the paper was disproved. It means that results did not confirm significant impact of friends-and-neighbours effect on electoral behaviour in the entire area of Tolmin electoral district. There were just 46% of cases with confirmed statistically significant correlation, which is not sufficient to generalize the impact to the entire area of electoral district. However, the impact was evident in several cases and this could be a proper reason for further research.

(Translated by the author)

Dela 44 • 2015 • 45–62

IDENTIFIKACIJA VROČIH TOČK GEODIVERZITETE NA PRIMERU KRAJINSKEGA PARKA RAKOV ŠKOCJAN

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Izvirni znanstveni članek
COBISS 1.01
DOI: 10.4312/dela.44.3.45-62

Izvleček
Kljub številnim načinom vrednotenja geodiverzitete prevladujejo predvsem metode, ki temeljijo na subjektivno zasnovanih kriterijih, kar se kaže v kvaliteti in primerljivosti pridobljenih podatkov. Namen članka je predstaviti aplikacijo metode vrednotenja geodiverzitete, ki v veliki meri izloča subjektivne dejavnike. Metodo, s katero smo izračunali indeks geodiverzitete na podlagi hrapavosti površja, in prostorsko razporeditev geodiverzitete, smo uporabili na območju Rakovega Škocjana.

Ključne besede: geografija, geomorfologija, geodiverziteta, geomorfološka dediščina, varstvo narave, Rakov Škocjan, Slovenija

IDENTIFICATION OF GEODIVERSITY HOTSPOTS ON EXAMPLE OF THE RAKOV ŠKOCJAN LANDSCAPE PARK

Abstract
Regardless of numerous methods of geodiversity evaluation, subjective criteria-based methods prevail what reflects in the quality and comparability of data. The purpose of this article is to present the application of geodiversity evaluation method, which is largely stripped of subjective factors. The method we used to calculate the geodiversity index is based solely on surface ruggedness and spatial distribution of geosites was applied in the area of Rakov Škocjan Landscape Park.

Key words: geography, geomorphology, geodiversity, geomorphological heritage, nature conservation, Rakov Škocjan, Slovenia

1 UVOD

Naš planet in njegovi ekosistemi so bolj kot kadarkoli na udaru zaradi nesmotrnega in prekomerno intenzivnega izkoriščanja naravnih virov. Nasproti temu, ponovno bolj kot kadarkoli prej, se tega tudi zavedamo. Najbolj očitno in tudi najbolj dramatično je izumiranje živalskih in rastlinskih vrst kot posledica izjemne dinamike izgubljanja habitatov. Ne le število, tudi pestrost živega sveta je postala pomembna vrednota. Posledično se je znotraj biologije razvil pojem biodiverziteta. Vendar je bil ob osredotočanju na živi del narave do nedavnega skorajda popolnoma prezrt njen neživi del, saj biodiverziteta opredeljuje vrednost neživih delov narave le skozi njihovo biološko funkcijo (Serrano, Ruiz-Flaño, 2009). Pozabljamo, da bi bilo brez pestrosti nežive narave tudi kaj malo biodiverzitete. Kot reakcija na pretiran biocentrični pristop se je k vrednotenju narave (Grey, 2013), ki izrazito zapostavlja abiotske elemente, prepoznal, razvil in tudi uveljavil pojem geodiverziteta. Geodiverziteta skuša prepoznati in vrednotiti elemente nežive narave: kamnine in minerale, površinske oblike in procese, hidrološke oblike in procese ter prsti. Ker se metodologija določevanja biodiverzitete ne more neposredno aplicirati na abiotske dele narave, se je razvila tudi cela paleta definicij geodiverzitete in prav tako metod njenega opredeljevanja (Reynard, 2009b).

Glavnina metod opredeljuje geodiverziteto na podlagi osebnega dojemanja lepote, pomembnosti in pestrosti posameznih elementov nežive narave, zato so po večini kvalitativne in subjektivne (npr. Panizza, Piacente, 1993; Pereira in sod., 2007; Reynard, Coratza, 2007; Zouros, 2007; Reynard, 2009a; Erhartič, 2012). Posledično se rezultati vrednotenja geodiverzitete močno razlikujejo glede na kakovost in, kar je še mnogo bolj pomembno, pridobljene podatke je praktično nemogoče primerjati med seboj.

Osnovni namen članka je, da na izbranem območju poskusimo uporabiti kar najbolj objektivne metode vrednotenja geodiverzitete v vseh korakih preučevanja. S tem želimo priti do objektivnih in kvantitativnih rezultatov pestrosti neživih elementov narave, ki jih lahko na enak način pridobimo za poljubno območje ter na koncu med seboj primerjamo. Z izbrano metodo vrednotenja bomo identificirali posamezne dele preučevanega območja z najvišjimi vrednostmi geodiverzitete oziroma vroče točke geodiverzitete (ang. *hotspots*). Za preučevano območje smo izbrali zaključeno prostorsko enoto krajinskega parka Rakov Škocjan, ki je nedvomno eno od najpomembnejših območij Slovenije z vidika pestrosti geomorfoloških in ostalih elementov nežive narave. Za dosego zastavljenega namena smo si zastavili sledeče cilje:

- pregled dosedanjih praks vrednotenja geodiverzitete po svetu in v Sloveniji;
- izbor, prilagoditev in aplikacija čimbolj objektivne metode vrednotenja geodiverzitete na območju krajinskega parka Rakov Škocjan;
- opredelitev vročih točk geodiverzitete;
- evalvacija rezultatov vrednotenja.

Vrednotenje geodiverzitete je potekalo z uporabo geografskih informacijskih sistemov. Terensko prepoznane elemente nežive narave smo pretvorili v digitalno obliko ter v kombinaciji z analizo in modeliranjem digitalnega modela nadmorskih višin prišli do t.i. indeksa geodiverzitete, na podlagi katerega smo lahko opredelili vroče točke.

2 GEODIVERZITETA V SLOVENIJI

Vrednotenje abiotskega dela narave ima v svetovnem in slovenskem merilu dolgo tradicijo. Na območju Slovenije so se prvi primeri vrednotenja pojavili leta 1958, v povezavi z zakonsko ureditvijo statusa naravnih spomenikov. Takrat je bil sprejet Zakon o varstvu kulturnih spomenikov in naravnih znamenitosti (1958), ki je obravnaval vse zavarovane objekte enako, ne glede na njihovo pomembnost ali vrednost. V naslednjem poskusu vrednotenja naravne dediščine (Peterlin in sod., 1976) so določili merila vrednotenja identificiranih elementov naravne dediščine: znanstvena vrednost, izjemnost ali redkost, značilnost ali tipičnost, kulturno-vzgojna vrednost, ekološka vrednost, krajinsko-oblikovna vrednost, rekreacijska vrednost in ogroženost. Inventar je bil nato dopolnjen leta 1988 (Skoberne, Peterlin, 1988a; Skoberne, Peterlin, 1988b) in 1991 (Skoberne, Peterlin, 1991), kjer so bila tudi nekoliko modificirana merila vrednotenja. Danes naravno dediščino obravnava Zakon o ohranjanju narave (2004), kjer so kot merila vrednotenja podana izjemnost, tipičnost, kompleksna povezanost, ohranjenost, redkost, ekosistemska pomembnost, znanstvenoraziskovalna pomembnost in pričevalna pomembnost. Ob identifikaciji se naravnim vrednotam podeli pravni status zavarovanega območja ali naravnega spomenika (Zakon o ohranjanju narave, 2004).

Vrednotenje abiotskega dela narave na območju Slovenije je torej omejeno na identifikacijo in kvalitativno vrednotenje geoloških in geomorfoloških oblik in procesov, ki imajo največje vrednosti. Namen identifikacije naravnih vrednot je podelitev pravnega statusa zaščite, kot je opredeljen z Zakonom o ohranjanju narave (2004).

Geodiverziteta je, podobno kot naravna vrednota, termin, ki označuje dele nežive narave, ki ima določeno vrednost. Opredeljujemo jo kot pestrost geoloških, geomorfoloških, hidroloških in pedoloških procesov, oblik in elementov na določenem območju (npr. Erhartič, 2011; Grey, 2013). Termin je relativno mlad, saj je bil v literaturi prvič uporabljen šele leta 2004 (npr. Grey, 2013) kot abiotska sopomenka izrazu biodiverziteta. Poglavitna razlika med identifikacijo geodiverzitete in obstoječo zakonsko opredeljeno identifikacijo naravnih vrednot (Zakon o ohranjanju narave, 2004) je v namenu inventarizacije oblik in procesov ter v konceptu metode. Namen identifikacije geodiverzitete ni pravna zaščita, pač pa le dokumentacija, vrednotenje in ocena možnosti uporabe abiotskih sestavin narave.

Vrednotenje geodiverzitete ne obsega izključno sestavin pokrajine z največjo vrednostjo, pač pa zajema vse geološke, geomorfološke, hidrološke in pedološke sestavine, ki jim lahko pripišemo vrednost (npr. Erhartič, 2007; Grey, 2013). Metodologija vrednotenja ni kvalitativna kot predvideva dosedanja praksa (Zakon o ohranjanju narave, 2004), pač pa kvantitativno določimo osnovno vrednost, ki sestavino opredeli na čimbolj objektiven in strokoven oziroma znanstven način. Poleg osnovne vrednosti določimo tudi dodano vrednost, ki pa je povsem odvisna od namena vrednotenja geodiverzitete (npr. Panizza, Mennella, 2007; Pereira, Pereira, Caetano Alves, 2007; Reynard in sod., 2007; Zouros, 2007). Tako pri vrednotenju geodiverzitete opredeljujemo vrednosti celotnega analiziranega območja za turistične, pedagoške, varstvene, znanstvene ali druge namene.

Kljub temu, da je vrednotenje abiotskega dela narave v smislu geodiverzitete relativno mlado (npr. Grey, 2013), je bil prvi objavljen primer vrednotenja na območju

Slovenije izdelan že zelo zgodaj (Orožen Adamič, 1970). V zvezi z opredeljevanjem vrednosti slovenskih dolin na območjih gradnje hidroelektrarn je avtor zapisal: »*Zato se je v zvezi z varovanjem okolja treba odločiti, da ločimo dejstva od čustev in poiščimo metodo, s katero bi številčno ponazorili naše dokaze.*« (Orožen Adamič, 1970, str. 152). S preprosto numerično metodo, ki je vključevala oblikovanost reliefa, faktor razgleda, krajinsko zanimivost in stopnjo urbanizacije, je avtor opredelil značaj doline, oziroma stopnjo atraktivnosti (Orožen Adamič, 1970; Peterlin in sod., 1970). V zadnjem desetletju pa je prišlo do sistematičnega vrednotenja geodiverzitete različnih območij Slovenije (Erhartič, 2010a; 2010b; 2012).

Na območju Slovenije je bilo vrednotenje geodiverzitete prvič uporabljeno na največjih slovenskih slapovih (Erhartič, 2010b). Uporabljena metoda je temeljila na kombinaciji štirih različnih metod vrednotenja (Pralong, 2005; Serrano in González-Trueba, 2005; Pereira, Pereira, Caetano Alves, 2007; Reynard in sod., 2007), ki jih je avtor delno poenotil, tako da so bile končne vrednosti med seboj primerljive. Na podlagi rezultatov je avtor povzel, da so vse uporabljene metode problematične zaradi pretirane subjektivnosti, ki jih dovoljujejo kriteriji vrednotenja (Erhartič, 2010b).

Sledil je poskus inventarizacije geodiverzitete v okolici Blejskega jezera (Erhartič, 2010a). Avtor ni izdelal osnovne morfografske karte, ki bi služila identifikaciji elementov geodiverzitete, pač pa je v karto vključil že znane naravne vrednote (Zakon o ohranjanju narave, 2004). Končni rezultat je bila splošna pregledna karta abiotskih naravnih vrednot, ki so osnova za nadaljnji geoturistični razvoj lokalne skupnosti (Erhartič, 2010a).

Najobsežnejše vrednotenje geodiverzitete je bilo izdelano za območje Doline Triglavskih jezer (Erhartič, 2011; 2012). Celotno preučevano območje je avtor razdelil na 17 manjših območij oziroma geomorfoloških enot. Nato je na podlagi modificirane metode vrednotenja (Reynard in sod., 2007) opredelil posamezne vrednosti. Vsako območje je vrednotil na podlagi znanstvenih in dodanih vrednosti. Znanstvene vrednosti so vključevale redkost, tipičnost, celovitost in paleogeografsko vrednost, dodane vrednosti pa ekološko, estetsko, kulturno in ekonomsko vrednost ter dostopnost. Znanstvene in dodane vrednosti so podane numerično med 0 in 1, enako kot pri metodi, ki so jo predlagali Reynard in sod. (2007). Skupno vrednost z izobraževalno vrednostjo posameznih geomorfoloških enot je avtor podal opisno (Erhartič, 2011; 2012).

3 RAKOV ŠKOCJAN

Rakov Škocjan se nahaja v Notranjskem podolju, med Cerkniškim in Planinskim poljem. Na jugu so pobočja Javornikov, na severu ga nižje kraško površje s kopastimi vrhovi ločuje od Rakovško-Unškega polja. Celotno območje Rakovega Škocjana gradijo apnenci spodnjekredne starosti. Prevladujejo temnosivi ploščasti apnenci s plastmi, ki v povprečju vpadajo do 30 stopinj proti zahodu. Med skladi apnenca se pojavljajo tudi apnene breče z zrnatim dolomitnim in kalcitnim vezivom (Pleničar, 1963). Območje je razčlenjeno s številnimi prelomi s prevladujočo smerjo severozahod–jugovzhod (Čar, Gospodarič, 1984).

Celotno območje Rakovega Škocjana je zakraselo, kamnito in vrtačasto. Preko območja teče v plitvem kanjonu okoli dva kilometra dolga reka Rak. V povirnem delu, kjer

izvira iz Zelških jam, je zaradi velikega jamskega sistema plitvo pod površjem nastala skupina udornic. Ohranjeni deli jamskih stropov med udornicami so naravni mostovi; med njimi je najbolj znan Mali naravni most. Izvir Raka iz mogočnega vhoda v Zelške jame leži na začetku zatrepne doline. Glavnemu toku se z leve, južne strani pridružijo manjši potoki, ki imajo izvire v manjših zatrepih. Največji od pritokov se imenuje Kotel. Izvira v majhni zatrepni dolini iz dveh globokih izvirov, ki se imenujeta Očesi. Pred ponorom Raka v Tkalco jamo je Veliki naravni most (slika 1) in ločuje slepo dolino od udornice, ki je nastala nad delom ponorne jame. Rakov Škocjan najlažje opredelimo kot območje plitvega krasa, kjer je kombinacija kraških procesov in procesov, povezanih s podzemskim vodotokom plitvo pod površjem, vplivala na izredno pestrost geomorfoloških oblik in procesov.

Slika 1: Veliki naravni most je ena najbolj prepoznavnih naravnih vrednot v Rakovem Škocjanu (foto: U. Stepišnik)
Figure 1: The Great Natural Bridge is one of the most distinguishable geosites in the area of the Rakov Škocjan (photo: U. Stepišnik)

O geomorfološki pestrosti Rakovega Škocjana je pisal že Valvasor v okviru naravnih redkostih Kranjske (Valvasor, 2009). V svojem delu slikovito opisuje številne jame, podzemne reke, brezna v okolici Velikega naravnega mosta, kjer je nekoč stala cerkev sv. Kancijana, po kateri se Rakov Škocjan tudi imenuje. Prvi strokovni geomorfološki pregled celotne doline je podal Šerko (1949), v katerem je poleg podrobnega geomorfološkega in hidrološkega opisa območja podal tudi razlago nastanka celotne doline. Kasnejši avtorji so pojasnjevali geomorfološke (Gams, 1965; Kunaver, 1966; Ferk, Stepišnik, 2011), geološke (Čar, Gospodarič, 1984; Habič, Gospodarič, 1987) in hidrološke (Gams,

1966; 1970; Gospodarič, Kogovšek, Luzar, 1983; Kogovšek, 1999) značilnosti območja. Zaradi pestrosti geoloških in geomorfoloških pojavov je bil Rakov Škocjan leta 1949 zavarovan kot krajinski park.

4 METODE RAZISKAVE

4.1 Definicije geodiverzitete

Geodiverziteto so avtorji opredeljevali na različne načine, a najbolj preprosto in celovito definicijo je podal Kozłowski (2004), ki jo je opredelil kot naravno pestrost Zemljinega površja, ki se nanaša na geološke in geomorfološke vidike, prsti in površinske vode. V tuji literaturi se za prvine, ki jih vrednoti geodiverziteta, uporabljajo termini *geosite* (npr. Grey, 2013), *geomorphological site* (Panizza, Piacente, 1993), *geomorphosite* (Reynard in sod., 2007) ali *geotop* (Reynard in Coratza, 2007), v Sloveniji pa se uporablja termin *geomorfološka dediščina* (Erhartič, 2010b). Ta termin po našem mnenju ni najustreznejši, saj zajema le geomorfološke oblike in procese, ne pa geoloških, hidroloških in pedoloških prvin. Hkrati je izraz *geomorfološka dediščina* sopomenka *geomorfološki naravni vrednoti* (Zakon o ohranjanju narave, 2004), zato bomo v nadaljevanju članka za vse prvine vrednotenja geodiverzitete uporabljali termin *elementi geodiverzitete*.

Obstajata dva glavna pristopa definiranja elementov geodiverzitete. Ozka definicija jih omejuje le na tiste elemente, ki imajo poseben pomen pri interpretaciji razvoja Zemlje. Ti elementi geodiverzitete omogočajo prostorsko ali časovno interpretacijo razvoja območja v smislu geoloških in geomorfoloških procesov, zato naj bi bilo vrednotenje geodiverzitete omejeno le na opredeljevanje strogega znanstvenega pomena posameznih elementov (Reynard, 2009b).

Širša definicija opredeljuje elemente geodiverzitete kot geološke, geomorfološke in pedološke pojave, ki jih dojemamo kot neko vrednost. Avtorji opredeljujejo vrednosti na različne načine, a jih lahko v grobem poenostavimo na osnovne oziroma znanstvene vrednosti ter na dodane oziroma estetske, kulturne, zgodovinske, ekološke in ekonomske vrednosti (Panizza, Piacente, 1993; Reynard, 2009b).

Elementi geodiverzitete so torej deli zemeljskega površja s posebno vrednostjo. Njihova velikost ni opredeljena, saj navadno obsegajo geomorfološko ali geološko obliko, oziroma območje pedoloških značilnosti s posebnim pomenom. Elementi morajo biti prostorsko omejeni in jasno ločeni od okolice (Reynard, 2009b). Geodiverziteta je torej pestrost elementov geodiverzitete na nekem zaključenem območju preučevanja. Geodiverziteta ne obravnava le zakonsko varovane naravne vrednote (ang. *geoheritage*), ampak vse elemente, katerim lahko pripišemo neko vrednost oziroma pomen (Grey, 2013).

4.2 Identifikacija elementov geodiverzitete

Obstaja veliko različnih metod identifikacije elementov geodiverzitete. Najpreprostejše metode so namenjene vrednotenju že znane naravne dediščine (naravnih vrednot) na

regionalnem nivoju. Te metode pravzaprav niso namenjene sistematični inventarizaciji elementov geodiverzitete, ampak le kvalitativno in kvantitativno vrednotijo že obstoječo naravno dediščino (Reynard in sod., 2007; Zouros, 2007). Njihov namen je opredeljevanje dodane vrednosti geoturističnega potenciala ali potreba po geokonzervatorstvu. Te metode ne obravnavajo posameznih elementov geodiverzitete, ampak predhodno razdelijo preučevano območje na manjše podenote, ki naj bi predstavljale nekakšna območja kompleksne povezanosti elementov geodiverzitete (Panizza, Mennella, 2007; Pereira, Pereira, Caetano Alves, 2007; Reynard in sod., 2007; Zouros, 2007).

Podrobne metode inventarizacije elementov geodiverzitete na nekem zaključenem območju temeljijo na sistematični inventarizaciji oziroma kartiranju elementov geodiverzitete, na njihovi identifikaciji, klasifikaciji ter prostorski dokumentaciji. S to metodo obravnavamo vse geološke, geomorfološke, hidrološke in pedološke elemente na območju in jih predstavimo na podrobni tematski karti elementov geodiverzitete (Carton, Coratza, Marchetti, 2005; Serrano, González-Trueba, 2005; Serrano, Ruiz-Flaño, 2009). Karta elementov geodiverzitete je osnova za nadaljnje vrednotenje, hkrati pa je osnova za morebitne tematske poučne poti, brošure, izobraževalne table, vodene oglede in druge dejavnosti, ki so namenjene prenosu znanja na širšo javnost. Prav zato je kartiranje elementov geodiverzitete drugačno od klasičnega geomorfološkega in geološkega kartiranja in kot tako zahteva svojo metodologijo.

Za potrebe identifikacije elementov geodiverzitete smo v okviru naše raziskave uporabili prilagojeno geomorfološko analitsko metodo (Pavlopoulos, Evelpidou, Vassilopoulos, 2009). Identifikacija in klasifikacija elementov geodiverzitete je temeljila na analizi digitalnega kartografskega gradiva v različnih merilih (1 : 5000, 1 : 25.000) in digitalnih ortofoto posnetkov. Temu je sledil podroben terenski pregled, med katerim smo podrobno morfografsko kartirali celotno preučevano območje v merilu 1 : 5000. Poleg geomorfoloških elementov smo identificirali in klasificirali tudi geološke in hidrološke elemente. Na ta način smo izdelali podrobno inventarizacijo elementov geodiverzitete na celotnem območju preučevanja, ki je služila kot izhodišče za nadaljnjo analizo.

4.3 Vrednotenje elementov geodiverzitete in identifikacija vročih točk geodiverzitete

V zadnjih desetletjih se je razvilo veliko različnih metod vrednotenja geodiverzitete (npr. Pralong, 2005; Pereira, Pereira, Caetano Alves, 2007; Reynard in sod., 2007; Zouros, 2007). V osnovi so si metode podobne, večino bi lahko logično razdelili na dva dela: v prvem delu znanstveno vrednotijo elemente, drugi del pa večinoma obsega dodano vrednost in ekonomski potencial. Znanstvena vrednost je pri vseh metodah podobna, saj večinoma opredeljuje redkost, ohranjenost, tipičnost in kompleksno povezanost elementov geodiverzitete (npr. Erhartič, 2007; 2011; Reynard in sod., 2007). Vrednotenje dodane vrednosti in ekonomskega potenciala je navadno ciljno usmerjeno, saj ima vsaka metoda geoturistični, izobraževalni ali naravovarstveni namen. Tako se vrednotijo estetski vidik, prisotnost kulturnih ali zgodovinskih elementov, religiozna pomembnost, barvni kontrast in podobno (Reynard, 2009a). Merila vrednotenja so pri vseh metodah ohlapna (Erhartič,

2012) in v veliki meri prepuščena subjektivnosti (Kozłowski, 2004; Serrano, Ruiz-Flaño, 2009). To velja za znanstveno vrednotenje, še bolj pa za dodano in ekonomsko vrednost.

V raziskavi smo poskušali uporabiti čimbolj objektivno metodo vrednotenja geodiverzitete. S tem bi razvili metodo, katere rezultati ne bi bili odvisni od ocenjevalca, in bi kot taka bila uporabna tudi na drugih območjih. Za osnovo vrednotenja smo uporabili metodo, ki sta jo predlagala Serrano in Ruiz-Flaño (2007; 2009). Metoda se uporablja za oceno indeksa geodiverzitete na nekem območju. Vključuje analizo abiotskih elementov (geoloških, hidroloških, geomorfoloških in pedoloških), ki so bili ustrezno inventarizirani in prostorsko dokumentirani na karti. Indeks geodiverzitete temelji na fizičnih elementih na površju in hrapavosti površja (ang. *surface roughness*). Torej je indeks geodiverzitete večji, če je več različnih elementov na neki prostorski enoti, hkrati pa nanj bistveno vpliva hrapavost površja. Za izračun indeksa geodiverzitete se uporablja enačba (Serrano, Ruiz-Flaño, 2007):

$$Gd = \frac{Eg\ R}{ln\ S}$$

Gd = indeks geodiverzitete; Eg = število različnih elementov geodiverzitete na prostorsko enoto; R = koeficient hrapavosti površja; S = površina območja v km^2

Območja z najvišjim indeksom geodiverzitete potemtakem izkazujejo tako pestrost abiotskih elementov na površju kot razgibanost površja. Dele preučevanega območja z zelo visokim indeksom geodiverzitete bomo opredelili kot vroče točke geodiverzitete (ang. *geodiversity hotspot*).

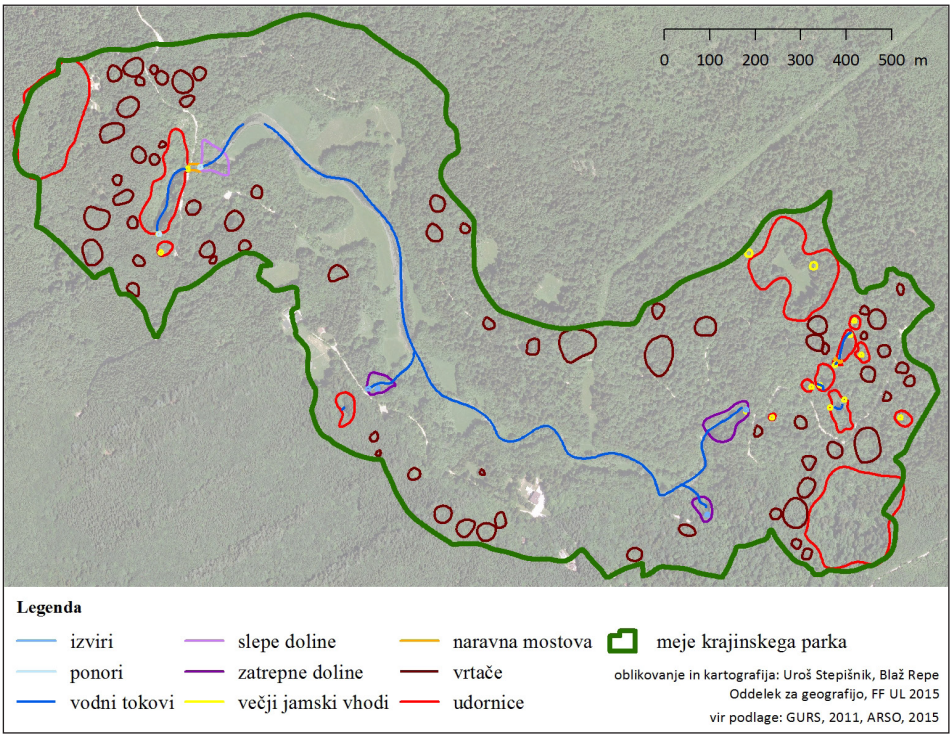
5 METODE IDENTIFIKACIJE VROČIH TOČK GEODIVERZITETE

Geoinformacijska orodja nam služijo kot pomoč pri izdelavi mnogih, predvsem kvantitativnih analiz površja, na podlagi katerih lažje in učinkoviteje pridemo do objektivnih rezultatov. S postopkom smo se tudi želeli čimbolj izogniti subjektivnim presojam, ki so prisotne v mnogih primerih vrednotenja geodiverzitete (Erhartič, 2012). Osnovni namen izračuna je bil pridobiti rezultate, ki so kar najmanj odvisni od samega ocenjevalca. Tudi izračun indeksa geodiverzitete, kot sta ga predlagala Serrano in Ruiz-Flaño (2009), je potekal z uporabo geoinformacijskih sistemov po naslednjih korakih:

- izbor podatkovnih slojev in vzpostavitev geografskega informacijskega sistema za preučevano območje;
- prepoznavanje, digitalizacija, priprava in pretvorbe površinskih abiotskih elementov;
- izračun parametrov enačbe za izračun indeksa geodiverzitete;
- prilagoditev izračunanih podatkov za končni prikaz.

Vse analize in prikazi so bili izdelani s pomočjo geoinformacijskih orodij *ArcGIS 10.2.2.*, *Saga GIS 2.1.4*. ter *Idrisi Selva 17.0*.

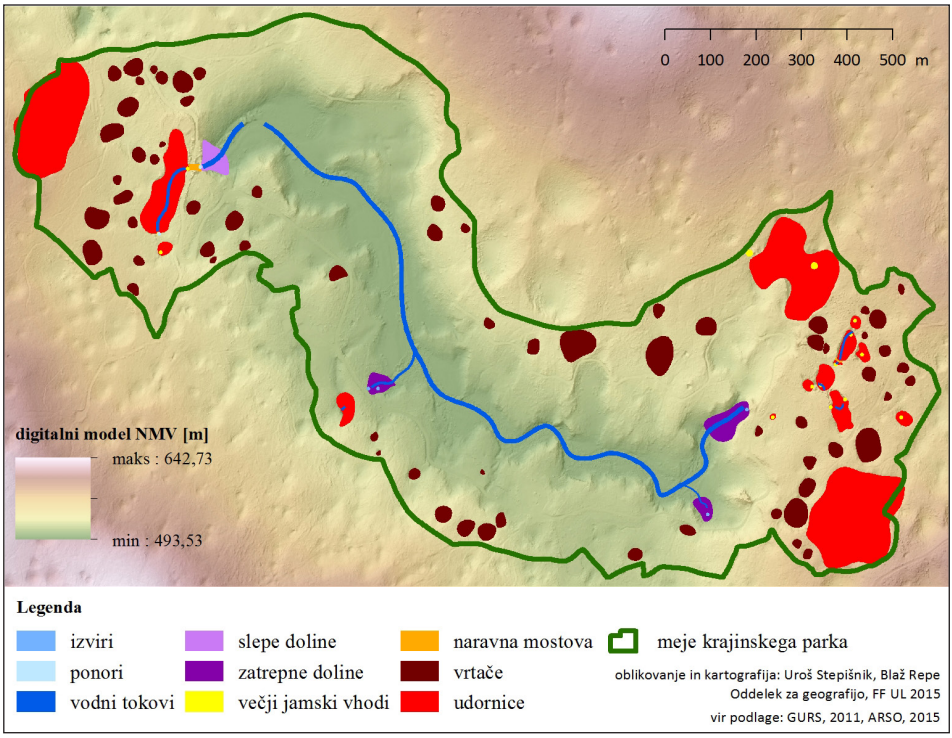
Slika 2: Karta prepoznanih elementov geodiverzitete
Figure 2: The map of identified geosites



V prvem koraku smo zbrali ustrezne podatke, s katerimi smo lahko prišli do končnega rezultata. Glavni in najpomembnejši podatkovni sloj je bil lidarski digitalni model nadmorskih višin z natančnostjo 1 x 1 m (ARSO, 2015), na podlagi katerega so potekali izračuni parametrov. V pomoč pri prepoznavanju nekaterih površinskih oblik so nam bili tudi digitalni ortofoto posnetki (GURS, 2014). Vsi podatkovni sloji so bili pripravljeni v Gauss-Krügerjevem koordinatnem sistemu z uporabo prečne Merkatorjeve projekcije in na elipsoidu Bessel 1841.

V naslednjem, najpomembnejšem koraku smo prepoznavali, določili in opredelili posamezne abiotske pojave kot elemente geodiverzitete. Metoda opredeljevanja je potekala na podlagi terenskega pregleda in kartiranja, dopolnjena na podlagi digitalnih lidarskih podatkov in digitalnih ortofoto posnetkov. Kot prostorske pojave smo prepoznali naslednje abiotske elemente: vodne izvire (4) in ponore (2), potek vodnih tokov (10), slepe (4) in zatrepne doline (7), večje jamske vhode (17), oba naravna mostova (2), vrtače (72) in udornice (20) (slika 2). Ker vsi našteti elementi v pokrajini dejansko zavzemajo določeno površino, smo vse pojave ustrezno pretvorili v mnogokotniško (poligonsko) obliko z realno površino (slika 3). Na ta način smo prepoznali in opredelili dejansko stanje elementov geodiverzitete na preučevanem območju.

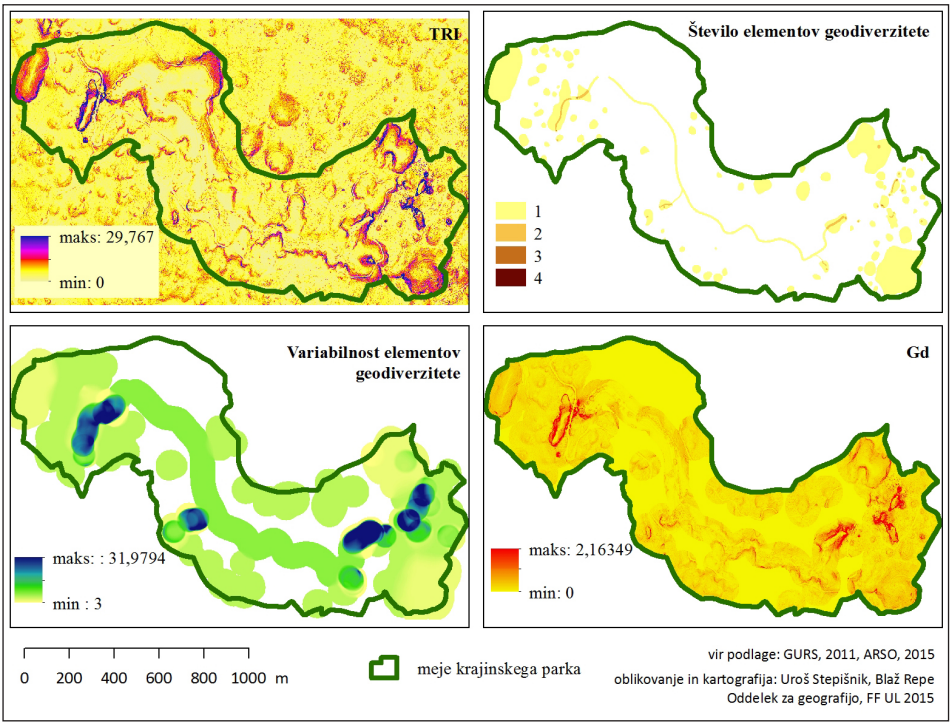
Slika 3: Lidarski digitalni model nadmorskih višin z mnogokotniškimi elementi geodiverzitete
Figure 3: LIDAR digital elevation model with polygons of geosites



Tretji pomemben korak je zajemal izračun posameznih parametrov, ki jih predvideva metoda izračuna indeksa geodiverzitete, kot sta jo predlagala Serrano in Ruiz-Flaño (2009). Za indeks hrapavosti površja (*R*) smo uporabili reliefni indeks razgibanosti (ang. *Terrain Ruggedness Index*, TRI) (Blaszczynski, 1997; Riley, DeGloria, Elliot, 1999). Indeks razgibanosti sodi med rastrske analize sosedstva, temelji na principu drsečega matričnega okna in je mera različnosti nadmorskih višin med okoliškimi rastrskimi celicami v digitalnem modelu nadmorskih višin. Gre za kvadrat (pozitivne vrednosti) razlike med nadmorsko višino centralne celice matričnega okna in vsako od neposrednih sosednjih osmih oklepajočih celic. Postopek izračuna povprečje kvadratov, rezultat kvadratno koreni in dobljeno vrednost pripiše osrednji celici (Riley, DeGloria, Elliot, 1999; Conrad, 2010).

Število različnih elementov geodiverzitete na prostorsko enoto (*Eg*) smo prav tako izračunali na podlagi analize sosedstva, in sicer variabilnost v 50-metrskem krožnem polmeru (*Focal statistics, Variety*). Analiza variabilnosti zahteva podatke v rastrski obliki. Mnogokotniške (poligonske) vektorske sloje smo združili v enoten sloj, v katerem je vsak del vseboval število različnih elementov geodiverzitete na določeni lokaciji, in ga nato pretvorili v rastrsko obliko. Na podlagi predlagane enačbe (Serrano, Ruiz-Flaño, 2009) smo izračunali indeks geodiverzitete (*Gd*) v rastrskem kontinuiranem načinu.

Slika 4: Reliefni indeks razgibanosti (levo zgoraj), število elementov geodiverzitete (desno zgoraj), variabilnost elementov geodiverzitete (levo spodaj) in rastrski indeks geodiverzitete (desno spodaj)
Figure 4: Surface roughness index (upper left), number of geosites (upper right), geosite variability (lower left) and raster index of geodiversity (lower right)



Kontinuiran rastrski prikaz je nadvse primeren za nadaljnje analize, saj opredeljuje indeks geodiverzitete zelo natančno, na posamezno, 1 x 1 m veliko celico, in tako omogoča vpogled za posamezno želeno lokacijo. Vendar je bil naš cilj prikazati zaključena območja, na podlagi katerih bo mogoče določiti dele krajinskega parka Rakov Škocjan z visoko stopnjo pestrosti elementov geodivertitete oziroma vročih točk geodiverzitete. Tako smo v zadnjem koraku z glajenjem podatkov (*Filter, Low*), uporabo modula večine (*Focal Statistics, Majority*) ter na koncu še z generalizacijo in glajenjem dobljenih rezultatov (*Boundary Clean, Descending*) dobili vektorski prikaz indeksa geodiverzitete, kjer so imele večje zaključene enote prednost pred manjšimi in raztresenimi.

Končni rezultat je pet območij s sorazmerno homogeno vrednostjo indeksa geodiverzitete, od najmanjše (1, izjemno nizek) do najvišje (5, izjemno visok) (slika 5).

6 REZULTATI

Na osnovi prilagojene metode računanja indeksa geodiverzitete, ki sta jo predlagala Serrano in Ruiz-Flaño (2009), smo izračunali indeks geodiverzitete za celotno območje krajinskega parka Rakov Škocjan. Razporeditev vrednosti indeksa geodiverzitete je glede na enačbo odvisna od dveh parametrov, razgibanosti površja in pestrosti pojavljanja različnih abiotskih elementov na preučevanem območju. V Rakovem Škocjanu smo prepoznali devet različnih elementov geodiverzitete, ki so prisotni v različnem številu in obsegu. Daleč največ je vrtač in udornic, ki pokrivajo tudi največje površine. Pomembnejši po deležu površine so tudi nekateri elementi, povezani z vodo (vodni tokovi, slepe in zatrepne doline). Ostali elementi so točkasti, z neznatno površino. Zaradi objektivnosti metode imajo vsi elementi enako težo in tako je v Rakovem Škocjanu na isti lokaciji mogoče najti največ štiri elemente geodiverzitete, najmanjša vrednost je seveda nič. Pestrost elementov geodiverzitete je visoka, kjer je več elementov ne le točno na določeni lokaciji, ampak tudi v neposredni bližini. Variabilnost elementov geodiverizitete se razporeja med vrednostmi 0 in 32 (slika 4).

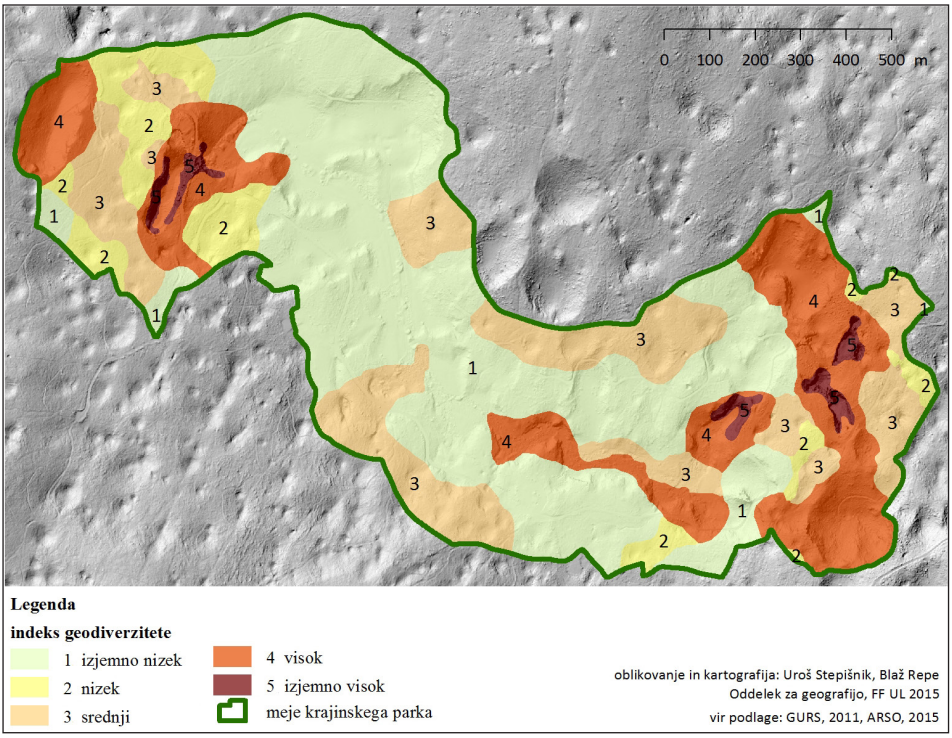
Drugi element, ki vpliva na končni rezultat, je razgibanost ali indeks hrapavosti površja, ki dejansko govori o pestrosti razporejanja relativnih nadmorskih višin (Riley, DeGloria, Elliot, 1999). Vrednosti se razporejajo na sorazmerno majhnem intervalu (Nunn, Puga, 2012) od nič do 30, vendar je treba upoštevati, da gre za majhno kraško območje z izrazito drobno razčlenjenostjo površja. Razpon absolutnih nadmorskih višin je majhen (najmanjša nadmorska višina je 493,5 m, največja 642,7 m), relativno pa te vrednosti na razgibanem kraškem površju zelo variirajo (slika 4).

Na koncu postopka smo indeks geodiverzitete standardizirali glede na površino celotnega območja in je zavzel vrednosti na intervalu med 0 in 2,16. Vrednosti indeksa smo nato razvrstili v pet razredov, od izjemno nizkega do izjemno visokega (preglednica 1, slika 5), po principu naravnih, Jenksovih razredov (Jenks, 1967).

Preglednica 1: Površine in deleži območij pestrosti geodiverzitete v krajinskem parku Rakov Škocjan
Table 1: Extents and ratios of homogenous geodiversity areas in the Rakov Škocjan Landscape Park

Indeks geodiverzitete	Površina (ha)	Delež (%)
1 izjemno nizek	58,19	46,82
2 nizek	10,02	8,06
3 srednji	26,64	21,43
4 visok	27,07	21,78
5 izjemno visok	2,36	1,90
∑	124,27	100,00

Slika 5: Območja homogenega indeksa geodiverzitete v krajinskem parku Rakov Škocjan
Figure 5: Homogenous geodiversity areas in the Rakov Škocjan Landscape Park



Območja z visokim in zelo visokim indeksom geodiverzitete smo opredelili kot žarišča geodiverzitete. Tovrstna območja so v krajinskem parku Rakov Škocjan v okolici Velikega naravnega mosta, ob izviru Raka in v širši okolici Malega naravnega mosta.

Najzahodnejše območje žarišča geodiverzitete, v okolici Velikega naravnega mosta, ima visok reliefni indeks razgibanosti površja in vključuje udornico Škocjansko jamo, ostanek jamskega stropa – Veliki naravni most, Tkalco jamo, slepo dolino Raka in seveda tok Raka. Na tem območju so že danes opredeljene naravne vrednote udornica Škocjanska jama (v Inventarju najpomembnejše naravne dediščine Slovenije (Skoberne, Peterlin, 1988b) je opredeljena kot soteska Raka med Velikim naravnim mostom in Tkalco jamo), Veliki naravni most in tok Raka. Med naravne vrednote se uvrščajo tudi vse jame na tem območju, ki jih je poleg Tkalce jame še pet.

Drugo žarišče geodiverzitete je v okolici izvira Raka. K visokemu indeksu geodiverzitete poleg visokega reliefnega indeksa razgibanosti prispevajo tudi izvir Raka, tok Raka, zatrepna dolina, velik vhod v izvirno jamo in manjša udornica tik v zaledju izvira. Na tem območju je bil do sedaj kot naravna vrednota identificiran le tok Raka (Skoberne, Peterlin, 1988b).

Tretje in hkrati največje območje žarišča geodiverzitete je v vzhodnem delu krajinskega parka, v bližini Malega naravnega mosta. To območje ima obliko širokega pasu, ki se vleče od udornice Dvojni Globoščak na severu, preko vhoda v Zelške jame, skupine udornic nad jamskimi rovi, toka Raka v njihovih dneh do udornice Brlog na jugu. V tem območju, ki ima visok reliefni indeks razgibanosti, so tudi številne vrtače, nekaj manjših udornic in vhodov v jame. Naravne vrednote na tem območju so tok Raka, Mali naravni most, udornica Brlog in sedem jamskih objektov (Skoberne, Peterlin, 1988b).

7 ZAKLJUČEK

Osnovni namen članka je bil izbira, uporaba in ovrednotenje čimbolj objektivne metode za vrednotenje geodiverzitete. Na osnovi dosedanjih praks vrednotenja geodiverzitete in identifikacije vročih točk geodiverzitete smo uporabili prilagojeno metodo, ki sta jo predlagala Serrano in Ruiz-Flaño (2009). Ta metoda določevanja indeksa geodiverzitete upošteva več kriterijev, ki jih delno izračunamo na podlagi analize digitalnega modela nadmorskih višin, delno pa pridobimo z osnovnim kartiranjem. Osnova za izračun indeksa geodiverzitete so digitalni model nadmorskih višin, pridobljen z lidarskim snemanjem z ločljivostjo 1 x 1 m, in rezultati terenskega dela, pretvorjeni v digitalno obliko. Končni rezultat, po izračunu indeksa, je zglajen in generaliziran, primeren za izdelavo kart in določevanje zaključenih območij večje oziroma manjše pestrosti geodiverzitete. Na ta način je osnovno opredeljevanje geodiverzitete na nekem območju v večji meri avtomatizirano in s tem tudi bolj objektivno.

Območja z visokim indeksom geodiverzitete smo opredelili kot žarišča geodiverzitete. Če bi upoštevali subjektivna merila, bi v Rakovem Škocjanu med najpomembnejšimi abiotskimi elementi zagotovo prepoznali oba naravna mostova. Vendar uporabljena metoda zaradi objektivnosti upošteva le različno število vrednot in hrapavost površja. Pri aplikaciji metode na območju krajinskega parka Rakov Škocjan se je izkazalo, da se trenutno stanje identificiranih in tudi subjektivno najbolj prepoznavnih naravnih vrednot v veliki meri prekriva z izračunanimi žariščі geodiverzitete. Na osnovi tega ocenjujemo, da je metoda primerna za osnovno identifikacijo žarišč geodiverzitete, ki bodo nato služila kot pomembno orodje pri varstvu narave in identifikaciji geoturističnih in izobraževalnih potencialov obravnavanih območij. Predstavljena metoda omogoča ugotavljanje žarišč geodiverzitete tudi na drugih območjih Slovenije in njihovo medsebojno primerjavo.

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IDENTIFICATION OF GEODIVERSITY HOTSPOTS ON EXAMPLE OF THE RAKOV ŠKOCJAN LANDSCAPE PARK

Summary

Geodiversity is defined as variation of abiotic elements of the nature as rocks and minerals, surface features and processes, soils, as well as hydrologic features. The majority of geodiversity evaluation methods is based on highly subjective elements as are personal perceptions of beauty or personal judgements of diversity importance for individual geosites (e.g. Panizza, Piacente, 1993; Pereira, Pereira, Caetano Alves, 2007; Reynard, Coratza, 2007; Zouros, 2007; Reynard, 2009a; Erhartič, 2012). As a consequence, the results of geodiversity evaluation vary greatly depending on evaluators, therefore the quality of results is questionable.

The main purpose of the article was the selection and application of the utmost objective geodiversity evaluation method and to evaluate it in the area of the Rakov Škocjan Landscape Park. On the basis of current evaluation practices of geodiversity hotspots identification, we chose and applied slightly adjusted method proposed by Serrano Ruiz-Flaño (2009). This method is used for determining the geodiversity index on the basis of several criteria, which are partly calculated from digital elevation model, and partly obtained through the field mapping of geomorphosites. As a basis for obtaining geodiversity

index, we applied Lidar data with 1m cell size and the results of the field mapping which we converted to digital format. Through this approach of geodiversity index defining, the whole process is largely computerised and automated, therefore, the subjective influence is reduced. We defined the areas with a high geodiversity index as geodiversity hotspots.

We compared our method for identifying geodiversity hotspots with present situation of legally protected geomorphosites, which were identified mostly through highly subjective criteria. The areas of the most important legally protected sites in the Rakov Škocjan Landscape Park are concentrated nearby spring and ponor areas. In those areas, the Great and Small Natural Bridge, the most important landmarks of the area, are also positioned. However, the highly automated method which we applied, roughly exhibits similar results as present spatial distribution of legally protected sites in the area. The largest areas of geodiversity hotspots are also concentrated near the two natural bridges.

On this basis of given results we consider that the proposed method is suitable for basic identification of geodiversity hotspots. It can be applied likewise in any other area and through the proposed method comparison between individual areas is possible. The method can be utilised as an important tool for the geoconservation or identification of geotouristic potential as well as for evaluating of educational value of the area.

(Translated by the authors)

RAKOVA JELŠA AND SIBIRIJA – ETHNIC NEIGHBORHOODS IN TRANSFORMATION

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Original scientific article
COBISS 1.01
DOI: 10.4312/dela.44.4.63-84

Abstract
Rakova Jelša and Sibirija are the only two neighborhoods in Ljubljana with a majority of non-Slovene population. They were formed with immigration from the former Yugoslavia since 1970s. This immigration to Slovenia and Ljubljana and correspondent development of ethnic neighborhoods Rakova Jelša and Sibirija are presented in the paper. Basic socioeconomic characteristics of both neighborhoods are analyzed on the basis of census data from 1981 to 2011. With the survey of local population we tried to evaluate the satisfaction with the quality of the living environment and analyzed the issue of integration of immigrants into the new environment.

Key words: Rakova Jelša, Sibirija, Ljubljana, ethnic segregation, ethnic area, immigration

RAKOVA JELŠA IN SIBIRIJA – ETNIČNI ČETRTI V PREOBRAZBI

Izvleček
Rakova Jelša in Sibirija sta edini soseski v Ljubljani z večinskim neslovenskim prebivalstvom. Nastali sta s priseljevanjem prebivalstva iz območja nekdanje Jugoslavije od sedemdesetih let dalje. Predstavljen je proces priseljevanja prebivalstva iz nekdanje Jugoslavije v Slovenijo in Ljubljano ter nastajanje etničnih četrti Rakova Jelša in Sibirija. Na osnovi analize popisnih podatkov med letoma 1981 in 2011 so predstavljene osnovne socioekonomske značilnosti prebivalstva, z anketiranjem lokalnega prebivalstva smo ocenili tudi zadovoljstvo s kvaliteto bivalnega okolja in analizirali problematiko integracije priseljencev v novo okolje.

Ključne besede: Rakova Jelša, Sibirija, etnična segregacija, etnično območje, priseljevanje

1 INTRODUCTION

Neighborhoods Rakova Jelša and Sibirija are the only parts of Ljubljana, where the proportion of the non-Slovene population exceeds 50%. This ethnic area was formed with immigration from the former Yugoslavia since the 1970s onwards. Housing construction was carried on mostly without building permits, so it is the largest area of illegally constructed housing in Ljubljana. Both neighborhoods have a reputation of a problematic, dangerous and unsettled part of the city. This was confirmed by research of Krevs (2002a) about the topofilia and topophobia in Ljubljana. Besides the specific ethnic composition of population, very low socioeconomic status of the population, substandard urban infrastructure and low quality of living environment are characteristic for the area studied. According to the described features one could conclude that the area has all the characteristics of ethnic ghetto and slum. On the other hand, both neighborhoods are distinguished by an excellent location near the city center and the ring highway. The majority of the population is relatively satisfied with the quality of the living environment and the urban infrastructure is gradually improving by the Urban Municipality of Ljubljana (UML). The advantage of neighborhoods is a quiet and green residential environment in the immediate vicinity of the city center of Ljubljana. Can we thus expect in the future that the process of gentrification will take place in both neighborhoods?

The process of immigration from former Yugoslavia to Slovenia and Ljubljana and correspondent formation and development of ethnic neighborhoods Rakova Jelša and Sibirija are presented in the introductory part of the paper. Basic socioeconomic characteristics and population changes of both neighborhoods are analyzed on the basis of census data from 1981 to 2011. With a survey of local population we tried to analyze the satisfaction with the quality of the living environment and the issue of integration of immigrants in the new environment.

The ethnic spatial segregation in Ljubljana is a consequence of heterogeneous ethnic structure of population as a result of intensive immigration of non-Slovene population after the Second World War. For areas with a high share of non-Slovene population, an above-average share of lower educated and unskilled labor force employed mainly in manufacturing and services is characteristic as well. This is a reflection of the social composition of the immigrant population from the former Yugoslavia. Causes for immigration to Slovenia were primarily economic: economic underdevelopment, rural overpopulation, shortage of jobs in less developed regions of Yugoslavia, and the demand for unskilled labor in Slovenia (particularly in manufacturing, construction and services), a relatively favorable solution to the housing problem of immigrants and similar (Pak, 1993). About 10% of the population living in Slovenia is non-Slovene, and in cities this share is usually significantly higher. The non-Slovene population moved into urban areas which offered the greatest number of jobs for a labor force with a low level of education and skills.

Due to the high share of people who did not specify their nationality in the 2002 population census, the exact number of ethnic minorities in Ljubljana is impossible to determine. The share of the population who identified themselves as Slovene is thus 74%. Of the remainder, only one half specified their nationality, and as a consequence, the share of

those with unspecified nationality is about 13%. In the last population census from 2011 data on nationality was not available. Data on the number and share of immigrant population was used instead. In Ljubljana, there were around 48,000 immigrants (18% of the total population) from the area of ex-Yugoslavia in 2011. This number does not include the second and third generation of immigrants.

Most of the non-Slovene population moved to Ljubljana in the 1970s and 1980s, in particular between 1975 and 1982 (Repolusk, 2000). After 1991 immigration from the former Yugoslavia contracted sharply; among the more recent immigrants there is the predominance of Bosnians and Albanians from Kosovo and Macedonia. Immigration from the former Yugoslavia, especially from Bosnia and Herzegovina and Serbia, began to increase noticeably again after 2002. The number of ethnic minorities is also growing through natural increase but, on the other hand, process of assimilation, particularly among the second and third generations of immigrants, is taking place. The substance and meaning of ethnic belonging is the subject of constant examination and reinterpretation at the level of the individual and the community, in accordance with social circumstances. This is also clear from the census data and studies which find that the inhabitants of Ljubljana change their statements regarding nationality, religious faith and even native language (Komac, Medvešek, Roter, 2007).

2 THEORETICAL AND METHODOLOGICAL FRAMEWORK

The study of urban segregation has become one of main topics in urban geography over the last few decades. Many experts suggest that globalization and neo-liberal market economy has decisively contributed to a deepening of social and ethnic segregation in modern cities. Massive migration has added a new dimension to the already heterogeneous composition of many cities worldwide. Urban ethnic segregation has thus become the subject of heated discussions in Europe. Scholars disagree about positive and negative consequences of ethnic segregation. They have debated long over which combination of discrimination, economic factors and preferences can cause ethnic segregation. Neighborhoods with the preponderance of migrant-origin minorities may signify dangerous isolation from society at large, a concentration of social ills and potential ghettos (Savelsberg, 1984). The term ‘parallel society’, introduced by German sociologist Wilhelm Heitmeyer, refers to the self-organization of an ethnic or religious minority, often immigrant groups, with the intent of reducing or minimizing the spatial, social and cultural contacts with the majority society into which they immigrate. Such conditions can hasten the spread of social problems and lead to stigmatization of neighborhoods and reduce opportunities and participation in the labour market, educational system and political and cultural life (Beckoven, Kempen, 2003). On the other hand, ethnic enclaves may reduce the likelihood of conflict and compensate for welfare state mechanisms that have not been integrated well enough (Ireland, 2008). Segregation may thus enable the minority population to create a safe environment to form their own social networks. The formation of ethnic areas is thus the result of two main factors: on one side, the preservation of ethnic identity and easier inclusion in the new environment, and on the other side, discrimination

and hostility from mainstream society. The topic of ethnic segregation in urban areas has caught attention of Slovene urban geography already in the 1960s and the 1970s, with increasing migration of non-Slovene population to Slovenia. The main research topics were spatial distribution and segregation of non-Slovene population in urban areas and their assimilation and integration in the Slovene society.

The main goal of the paper is to analyze formation, development and transformation of ethnic neighborhoods Sibirija and Rakova Jelša. In the first part of the paper, we presented the main characteristics of immigration flows from ex-Yugoslavia to Slovenia, the process of ethnic segregation and the formation of ethnic areas Rakova Jelša and Sibirija. In this context we pointed out the main reasons and factors which contributed to development of ethnic areas on this locations. In the second part of the paper, we examined social and demographic structure and transformation of both neighborhoods and satisfaction of population with the quality of living environment. Different research methods were used to reach those objectives.

The main research method in exploration of social and demographic processes in the studied area was analysis and comparison of population census data from 1981, 1991, 2002 and 2011. This enabled us to delineate the main characteristics of ethnic, socioeconomic and demographic structure of population. We compared those characteristics with average values for Ljubljana and Slovenia to underline the specificity of social and demographic structure of this area. One of the main problems which we encountered in this analysis is the quality and availability of population census data for this area. The data on national belonging on the level of census districts was available only for population censuses of 1981 and 1991. In 2002 population census, data on ethnic belonging was not available on this territorial level. In the last population census question about national self-identification was not included at all. To resolve partly this problem, we used data on immigration instead. In addition, in population censuses of 1991 and 2002 a large proportion of population was ethnically undefined and undeclared. Both population censuses were including several statistical categories: Yugoslavs, regionally declared, ethnically undeclared, the category unknown and the category of persons that decide not to answer the question on national belonging. The comparison of demographic characteristics between 1981 and 2011 was carried on the territorial level of former local communities. The area studied was divided into two local communities: Zeleni Log and Rakova Jelša. The data from all population censuses was recalculated and presented on the level of former local communities which enabled a chronological comparison.

For the study of satisfaction of inhabitants with living environment and the process of assimilation and integration, a survey was carried on in the study area. The survey was conducted in January 2015. 196 questionnaires were completed, which included about 10% of households in the area studied. The primary purpose of the survey was to determine the satisfaction of the population with the quality of the living environment and to examine the position and the degree of assimilation of immigrants into the mainstream society.

In the first part of the questionnaire, questions were related to the satisfaction of residents with the quality of living environment in the neighborhoods, accessibility to services and housing standard. The questions referred to the satisfaction with housing

standard, the quality of living environment in the neighborhood, the investments of UML into public infrastructure, accessibility of basic services, reasons for settling in this neighborhood and similar. The second part of the questionnaire was dedicated to the problem of assimilation and discrimination of ethnic minorities in Slovenia. Questions referred to the knowledge and use of Slovene and other languages, the experience of discrimination based on national belonging and the intensity of social interaction between the members of ethical minorities. The results and analysis of the survey are presented in chapter 7.

3 IMMIGRATION FROM THE FORMER YUGOSLAVIA TO SLOVENIA

The immigration from the former Yugoslavia to Slovenia was the result of differences in economic development between the former republics. Until the Second World War Slovenia was typical emigration area, emigrations being focused initially on overseas countries and later mainly to Western Europe. After the Second World War, with increasing economic development, Slovenia gradually became the area of immigration. For the end of Second World War until the mid-1950s, political migrations were characteristic. Migrations between the republics in the first postwar period were not numerous, the reassignment of the officers of the Federal Yugoslav Army to Slovenia have been the only major migratory flow between Slovenia and the other republics. The period after 1950 represents the beginning of thirty years of intensive economic immigration to Slovenia. Despite the increasing immigration to Slovenia from the former Yugoslavia at the beginning of the 1960s Slovenia still reminded an emigration area (Dolenc, 2007). The total number of emigrants exceeded the number of immigrants from the former Yugoslavia in the 1970s as well. This was the result of migration policy of the country which, due to the phenomenon of unemployment, started to encourage temporary work abroad. For Slovenia, emigration of highly qualified work force was typical, the educational level of the immigrant population from the former Yugoslavia was quite low in this period, comparable with the average qualification level of the Slovene work force. Almost half of the immigrants in this period came from Croatia. Immigrants from Croatia were dominant till 1969, but in the beginning of the 1970s, the leading role in migration flows to Slovenia took Bosnia and Herzegovina. The 1960s also represent the beginning of the immigration of the Albanians from Kosovo. Besides Kosovo, the source areas of immigration to Slovenia were the regions of Bosnian Krajina, Bosnian Posavina and Eastern and Southern Serbia. Those same regions remained the main source of immigrants to Slovenia also in the later decades. In the 1960s, about 25,000 persons of non-Slovene ethnicity immigrated to Slovenia and about 6,000 were born in Slovenia. The share of first- and second-generation immigrants from the former Yugoslavia still failed to reach 5% of the population of Slovenia (Dolenc, 2007, p. 80).

The year 1970 can be characterized as a turning point, because it means the beginning of the longer period of positive net migrations to Slovenia. The main reasons for this were the rapid economic growth and the demand for less skilled labor force in Slovenia, the

beginning of the restriction of immigration to the countries of Western Europe and high fertility rate of non-Slovene population. This led to rapid changes in the ethnic composition of the population in Slovenia in the next two decades (Dolenc, 2007, p. 80). A high proportion of immigrants from Bosnia and Herzegovina (40%) and the increase in the proportion of the second generation of immigrants are characteristic for the 1970s. The number of ethnically undefined and those classified as 'Yugoslavian' increased significantly as well. The number of persons who identified themselves as 'Yugoslavian' has increased due to several reasons: the diverse ethnic composition of the population, mixed marriages, and tendencies to unitarism in Yugoslavia (Dolenc, 2007, p. 82). The Croats were still the most numerous ethnic group in Slovenia, but due to increased assimilation their share decreased. The share of the Serbs, who were immigrating from both Serbia and Bosnia and Herzegovina increased sharply.

In the 1980s, the migration flows from other republics of the former Yugoslavia to Slovenia started to ease slowly. The main reasons were the growing economic crisis in the whole country and the beginning of a period of political instability. The year 1988 is the dividing line, which ends a three-decade long period of economic immigration to Slovenia. The 1980s also represent an increase in the share of women among the immigrant population, as a result of a greater supply of jobs for women in services as well as the result of the process of uniting families.

After independence of Slovenia, the migration flows from the former Yugoslavia started to strengthen once again. More than 80% of all immigrants between 1991 and 2001 came from former Yugoslavia. The most numerous immigrant group in the 1990s were war refugees from Bosnia and Herzegovina. Estimates of their number are several and range up to 70,000 (Dolenc, 2007, p. 89). Only a minor part of the refugees from Bosnia and Herzegovina remained in Slovenia, their number is estimated by Dolenc at around 8,000 (Dolenc, 2007, p. 90). The phenomenon of illegal immigration was typical for the 1990s as well, Slovenia being a transitional area to other EU countries.

After 2001, the migration to Slovenia strengthened again. After entering of Slovenia in the EU, the share of immigrants from the former Yugoslavia, contrary to expectations, has not decreased. They represent 85% of the immigration of foreigners, mainly from Bosnia and Herzegovina and Serbia (Dolenc, 2007, p. 93). The main reason for the enhanced immigration was a favorable economic situation and high economic growth between 2001 and 2008 in Slovenia. After 2009, significantly reduced immigration is noted as a result of the beginning of economic crisis and a reduction in the demand for foreign labor force. Recent immigrants to Slovenia are mostly low qualified workers employed in construction industry and other poorly paid occupations. Male immigrants in the age group from 20 to 39 years, mostly from Kosovo and Bosnia and Herzegovina, prevail.

Immigrants often do not have equal opportunities in education, employment and political participation. Socioeconomic status of immigrant population is thus an important indicator of their integration into mainstream society. Sociological studies have shown that the socioeconomic status of immigrants from the former Yugoslavia does not differ significantly from the socioeconomic status of Slovene population. The population of immigrants and their descendants has a comparable educational level with the Slovene

population. There are no major differences in the unemployment rate as well. Major differences are noticeable in professional structure with the population of immigrants and their descendants overrepresented in less paid and less reputable professions (Bešter, 2007, p. 251). A relatively favorable level of the socioeconomic integration of immigrants can be attributed to the fact that most of the immigrants had Slovenian citizenship and were legally equal, with the same rights as other Slovene citizens. Inferior knowledge of Slovene language could represent a problem for the integration of immigrants, but the majority of the immigrant population estimated their understanding of Slovenian language as very good (Bešter, 2007, p. 251). A comparison between different ethnic groups revealed the lowest socioeconomic position of Bosnians, Albanians and Montenegrins. In average, they have lower educational level, higher unemployment and lower incomes (Bešter, 2007, p. 252).

Due to the immigration from the former Yugoslavia, the ethnic composition of the population of Ljubljana started to change after 1971. The strongest influx of immigrants was recorded between 1975 and 1982 (Repolusk, 2000, p. 70). Ljubljana ranks among the Slovene settlements with the highest share of non-Slovene population. According to the 1991 census, in Ljubljana municipality (Urban Municipality of Ljubljana – UML) lived a quarter of the non-Slovene population (Repolusk, 2000, p. 72). In 1991, 78.0% of population of UML declared as Slovenes and 7.7% as ethnically undefined. Among the remainder of the population there were 6.2% Serbs, 4.0% Croats and 2.9% Bosnians. In 2002 census, only 86.6% of the population of UML declared their ethnic belonging, 73.8% as Slovenes. Among other ethnic groups the most numerous were Serbs (13,100 persons), Croats (7,222) and Bosnians (5,763). Due to high proportion of nationally undefined, it is difficult to assess the real proportion of non-Slovene population. We can assume that the majority of the nationally undefined population has different hindrances to ethnic self-identification. Most likely they are members of the second or third generation of immigrants and members of the ethnically mixed households. A share of the non-Slovene population in UML in 2002 could therefore be evaluated between 20% and 25%. In 2011 census, the question of national belonging has not been included, therefore more recent data on the ethnic composition of the population is no longer available. The indirect data which indicate the heterogeneity of the population in UML is the number of immigrants born in one of the republics of the former Yugoslavia (47,709 persons or 17.5%). Of all the people immigrated into the UML (122,445 persons), there are 52,569 first-generation immigrants and 32,107 second-generation immigrants. The proportion of the population with foreign citizenship is relatively low (7.7% or 19,474 persons), since most of older immigrants gained Slovene citizenship in 1991.

4 THE ETHNIC SEGREGATION OF THE POPULATION IN SLOVENIA AND LJUBLJANA

The non-Slovene population in UML is spatially quite unevenly distributed; the phenomenon of spatial ethnic segregation is thus present. Ethnic segregation is defined

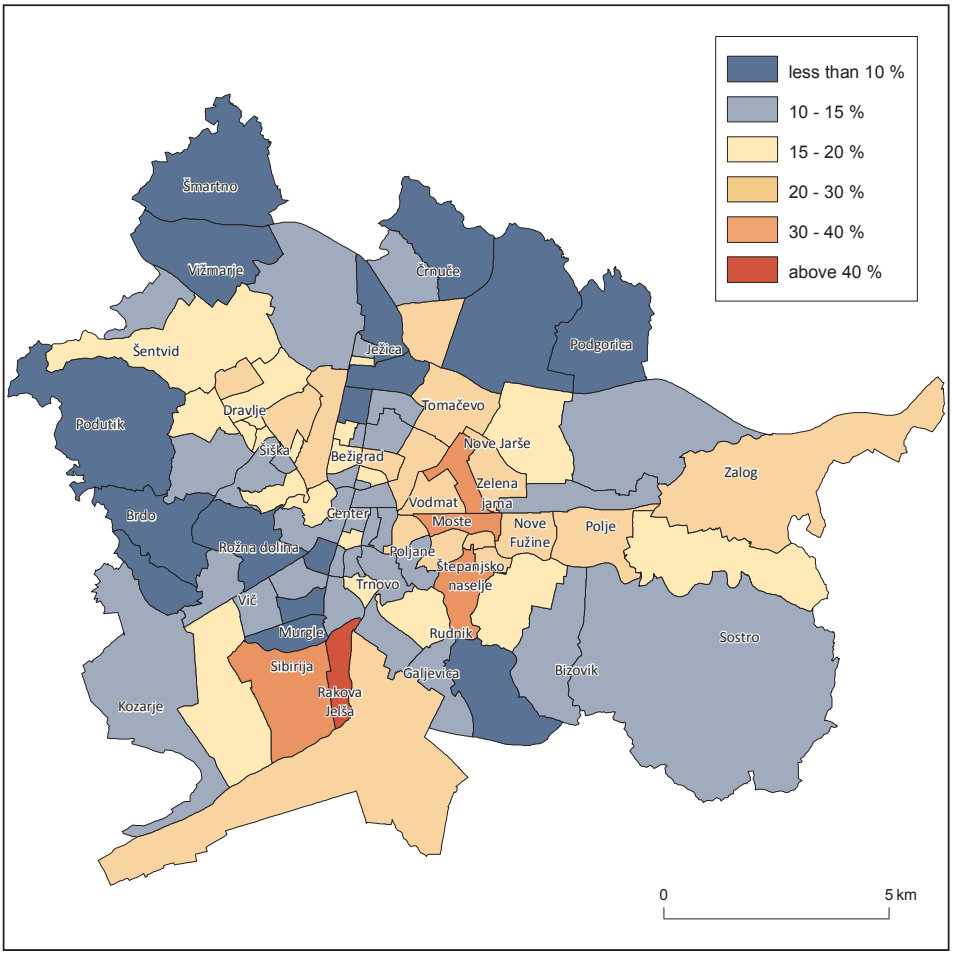
as the uneven spatial distribution of an ethnic group relative to the rest of the urban population. Based on census data from 1991, 2002 and 2011, we found that ethnic segregation is present in Ljubljana. The greatest problem for all immigrants is, in addition to finding employment, the housing. Therefore, new immigrants move in with relatives, friends, and acquaintances, i.e. with people from their home countries, who offer them assistance in finding housing, employment and social contacts in the new environment. Due to low incomes, they seek the cheapest accommodation and settle in the areas with poor living and housing conditions. During the period of the most intensive immigration of the non-Slovene population into Ljubljana, settlements of barrack-type housing arose as well as neighborhoods of illegally constructed single-family houses at the southern outskirts of the city. A very typical form of accommodation are the so-called 'bachelor dormitories' belonging to various construction and industrial companies which use them to house their workers in minimal accommodation standards. As part of solving the housing problem of immigrants and improving barrack-type and other substandard settlements, some public housing neighborhoods were built, such as the row houses in neighborhoods of Kašelj, Tomačevo and Črnuče. Some of the new immigrants have found housing in the older working class areas of the city with substandard accommodation. A large part of the non-Slovene population moved into the newly built apartment blocks. All this influenced the spatial distribution of the non-Slovene population in Ljubljana.

The highest shares of non-Slovene population are found in the following locations:

- substandard and illegally constructed neighborhoods of single-family houses in Rakova Jelša, Sibirija, Dolgi Most, Tomačevo and Zgornji Kašelj;
- areas of bachelor dormitories in Bežigrad between Topniška and Vojkova streets and the apartment blocks of Litostroj in Šiška;
- older working class neighborhoods with substandard housing such as Zgornje Poljane, Stari Vodmat and Zelena Jama;
- the high-rise housing estates from the 1970s and the 1980s in Nove Fužine, Spodnje Črnuče, Nove Jarše, Dravlje, Rapova Jama, Savsko naselje and Zalog.

The share of the non-Slovene population is the highest in the substandard neighborhoods of single-family houses, where it exceeds 50% and is as high as 70% in Rakova Jelša. Of the high-rise housing estates, the highest share is in Nove Fužine and Črnuče (40%), while it is somewhat lower in Savsko naselje, Nove Jarše, Rapova Jama and Dravlje. In the older working class districts it reaches about 30%.

Figure 1: The share of population in Urban Municipality of Ljubljana with first residence in one of the republics of former Yugoslavia in 2011
Slika 1: Delež prebivalcev v Mestni občini Ljubljana s prvim prebivališčem v eni izmed republik nekdanje Jugoslavije v letu 2011



Source/Vir: Statistical Office of the Republic of Slovenia, 2011

5 THE DEVELOPMENT OF ETHNIC NEIGHBORHOODS RAKOVA JELŠA AND SIBIRIJA

Construction of low standard dwellings has a long tradition on the Ljubljansko barje, which has been reported by Vogelnik (1938). In his study *Housing conditions*

in working class colonies in the area of the city of Ljubljana he examined the social and living conditions in the working class residential areas of Galjevica, Sibirija, Grad, Gramozna Jama and Vič. In the neighborhood Sibirija at southern outskirts of the city, 388 persons in 91 households lived in very bad conditions. He noted that one third of the residents live in the flats with less than 5 m^2 of living area per person. The expansion of low-income residential areas on the northern rim of Ljubljansko barje continued after the Second World War as well. The genesis of Sibirija and the Rakova Jelša can thus be traced to the period before Second World War. After 1955, illegal residential construction began on abandoned farm land, mainly by immigrants from other Yugoslav republics. Illegal residential construction reached a climax in the 1970s, when only in Rakova Jelša there were around 400 houses (Gantar, Kos, 1988, p. 40). Illegal or 'black' individual housing construction continued in the 1980s and 1990s as well. It is estimated that in 1988 around 4,000 persons lived in Rakova Jelša, among them about 20% Slovenes and 30% Serbs and Croats (Gantar, Kos, 1988, p. 40). In their study *The problems of social and spatial structure of the local community Rakova jelša* (Gantar, Kos, 1988), they suggested several reasons for the emergence of illegal residential settlements on this location. An important role had the tradition, since the area already developed as a working class slum in the 1920s. From the perspective of low-income immigrants, the location had several advantages: the excellent accessibility to the city center and southern ring road, building plots at very favorable price, green environment and possibility of urban farming (Gantar, Kos, 1988, p. 28). The Ljubljana-Vič municipality was partly responsible for the development and expansion of illegal housing as the master plan for the area was not passed on time and land was not purchased by the municipality. In the past, the northern edge of the Ljubljansko barje was less fertile marshy farm land used primarily for the production of horse fodder. When tractors replaced the horses, this kind of farming was abandoned. The market price of this less fertile agricultural land was very low. Because the municipality did not bought abandoned agricultural land, it was sold by owners to immigrants coming to Ljubljana as work force in manufacturing and services. When the land began to be of interest to prospective builders, the price substantially increased, although it was absolutely clear to all participants in the purchase that the land was not a building plot. Information about available land for prospective buyers was completely informal, through friendship and kin connections, such as 'I've heard that it is possible to buy cheap building plot on good location...'. It is of great interest that settlements Rakova Jelša and Sibirija were developed in the same time as neighboring high-income settlement of bungalow row houses Murgle. Murgle is an example of planned and very high-quality residential area with high-income population. The construction of Murgle has proven that even on marshy land development of housing of high standard is possible. In this way individual investors have gained experience how to use relatively simple building technics (sand and gravel mound) to improve the quality of housing on marshy land.

As a large proportion of housing in the area studied has developed in a form of illegal construction, this phenomenon will be presented briefly. The illegal individual housing construction in Slovenia was particularly widespread in the 1970s and the 1980s, but it

continued in later decades as well. Ravbar defines 'illegal housing construction' as any construction that permanently transforms the landscape or settlement without the prior approval of the urban planning administrative authority (Ravbar, 1976, p. 11). The causes for massive occurrence of illegal individual housing construction in Slovenia are several: the lack of building plots at convenient price, the high costs of municipal infrastructure and lengthy procedures in obtaining building permits, ineffective building inspection and praxis of tolerating illegal housing construction by local authorities. The emergence of illegal individual housing construction was most intensive in the 1970s and 1980s. The intensification of the phenomena coincided with the rise of individual private residential construction and suburbanization. The highest concentration of illegal residential areas is typical of Ljubljana, Maribor, Celje and the Coastal urban region. The northern edge of the Ljubljansko barje, i.e. the southern Ljubljana suburbs, is one of the largest areas of illegal residential construction in Slovenia.

Figure 2: The year of construction of buildings in the area of Sibirija
Slika 2: Leto izgradnje stavb na območju Sibirije

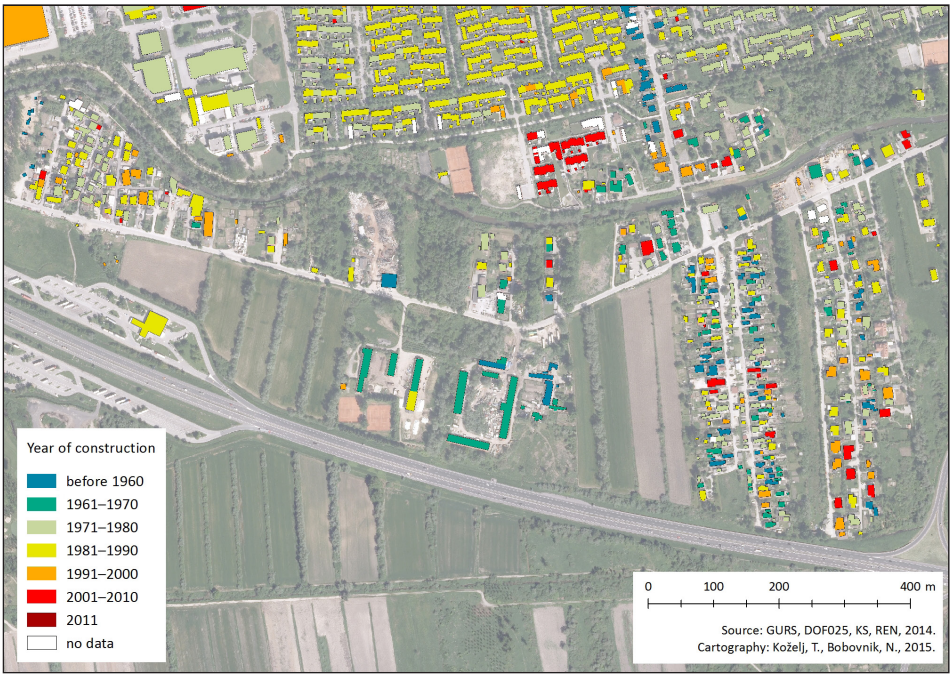
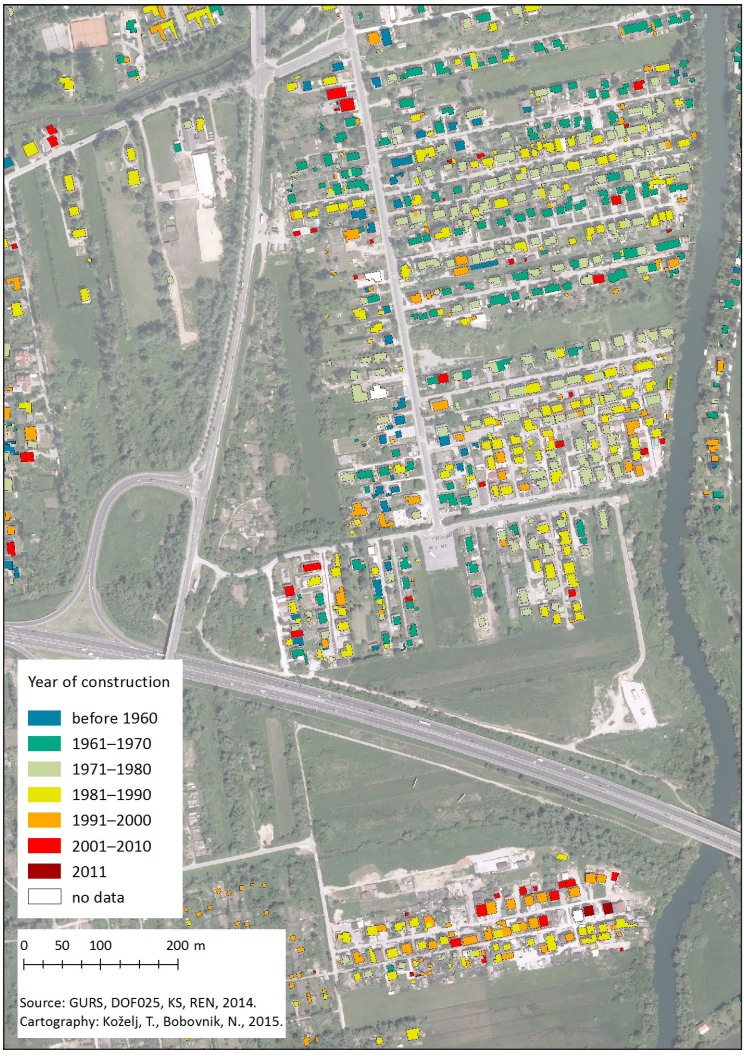


Figure 3: The year of construction of buildings in the area of Rakova Jelša
Slika 3: Leto izgradnje stavb na območju Rakove Jelše



As noted by Gantar and Kos (1988), this location has many advantages from the point view of individual investors: the proximity to the city center of Ljubljana, excellent transport accessibility, affordable land prices and the possibility of part-time agriculture. According to the president of the former local community Rakova Jelša (Kos, Gantar, 1988, p. 46), the location is very attractive, 'as you are at the same time in the city and in the countryside and in addition the price of land is very affordable'. In addition, the

development of the city of Ljubljana has been directed to the north and west, whereas the southern edge of the urban region was neglected by the municipality and urban planning experts. Only the construction of neighborhood Murgle partly stopped the expansion of illegal housing construction in the area.

Of great interest is the emergence and expansion of southern part of Rakova Jelša, to the south of the highway, where the first building was set up in 1969. The one-family house was built by a couple from Serbia. In 1969, the house was completely isolated in the middle of marshland. According to investors, the low price of land was the only reason for choosing this location. This building acted as a 'crystallization core' for future expansion of illegally constructed houses. According to urban planners, the construction of Southern Ring highway was supposed to stop further expansion of Rakova Jelša, but it didn't happen. The inhabitants were able to get basic municipal infrastructure (electricity, water, telephone) and official house address although they had no building permits. In 1989, the Ljubljana-Vič municipality adopted a building plan for the area which was a basis for legalization of buildings to the north of Southern Ring highway. For the buildings south of the highway demolition was planned. However, illegal housing construction continued after 1989 (Kos, Gantar, 1988, p. 47).

The main 'infrastructure' problem of Rakova Jelša remains the lack of public sewage system. Since the creation of the settlement, waste water flows into roadside open channels, then into the main channel along the Pot na Rakovo Jelšo street, then into the stream Curnovec and finally into the Ljubljanica river. Especially annoying is the smell, particularly during warm and dry weather. Unfinished sewage system presents a major environmental and potentially public health problem. Construction of sewage system and other municipal infrastructure (roads, pavements, public lights) in Rakova Jelša was and remains one of the most important urban development projects of the Ljubljana mayor Zoran Janković. Legalizing procedures with the objective of obtaining building permits were started by residents in collaboration with the Ljubljana municipality in 2007 and at the end of 2009 the first phase of the construction of sewage system and water purification plant was launched.

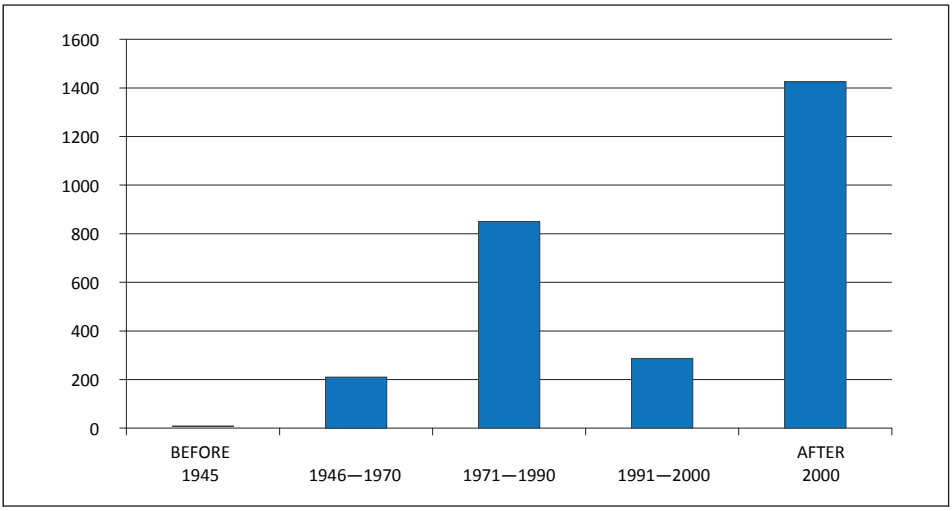
Prior to the beginning of the construction of sewage system, only 60 buildings had a building permit. Until April 2015, 300 buildings out of a total of 500 were legalized and only three owners didn't start with legalizing procedures (UML Projects: construction of sewerage system). The first phase was completed in 2012, and since then 50 house owners in Pot na Rakovo Jelšo and Ulica Štefke Zbašnik streets have the possibility to connect to the public sewage system. In addition, in the first phase, roads, sidewalks, bike lanes and public lighting were arranged and other infrastructure (gas, electricity, telephone, optical cable) has been constructed. In the second phase, launched in 2015, the construction and renovation of urban infrastructure in the side streets is planned, which will allow the connection to public sewage system to further 100 users. The third phase is planned to be continued in 2016, in which the connection to the sewage system will be enabled to the rest of the users. Water purification plant for 8,500 units will be completed during the third phase as well. Ljubljana municipality has applied for European structural funds to co-finance this project. The sewage system is designed as a vacuum system, as

the soil structure, the high level of ground water and the existing buildings do not permit the construction of classical type of sewage system with gravitational wastewater drain. Communal wastewater treatment plant will allow adequate cleaning of the wastewater for 8,500 people and clean water will be directed into the Ljubljanica river (Ljubljana – Green capital: Sewage system in the neighborhood Rakova Jelša).

6 THE SOCIOECONOMIC CHARACTERISTICS OF THE POPULATION OF RAKOVA JELŠA AND SIBIRIJA

According to the 2011 census, 5,106 persons lived in the former local communities Rakova Jelša and Zeleni Log (Sibirija), a substantial increase in relation to years 2002 (4,092), 1991 (4,101) and 1981 (3,185). Population growth in the area studied was most intense in the 1970s and 1980s and after 2000. This is consistent with the general trends in migration flows from the area of the former Yugoslavia. The stagnation in population growth in the 1990s was a consequence of reduced immigration, due to the crisis and war in the former Yugoslavia, the return of part of non-Slovene population back to countries of origin and intraurban migrations. The number of immigrants in all periods exceeded the total population growth, which means that the substantial number of residents emigrated from the neighborhood. We can conclude that high mobility of the population is typical for both neighborhoods, which is often a characteristic of ethnic and low-income areas.

Figure 4: Number of immigrants by decades between 1945 and 2000 in the former local communities Rakova Jelša and Zeleni Log
Slika 4: Število priseljenih po desetletjih med letoma 1945 in 2000 v nekdanjih krajevnih skupnostih Rakova Jelša in Zeleni Log



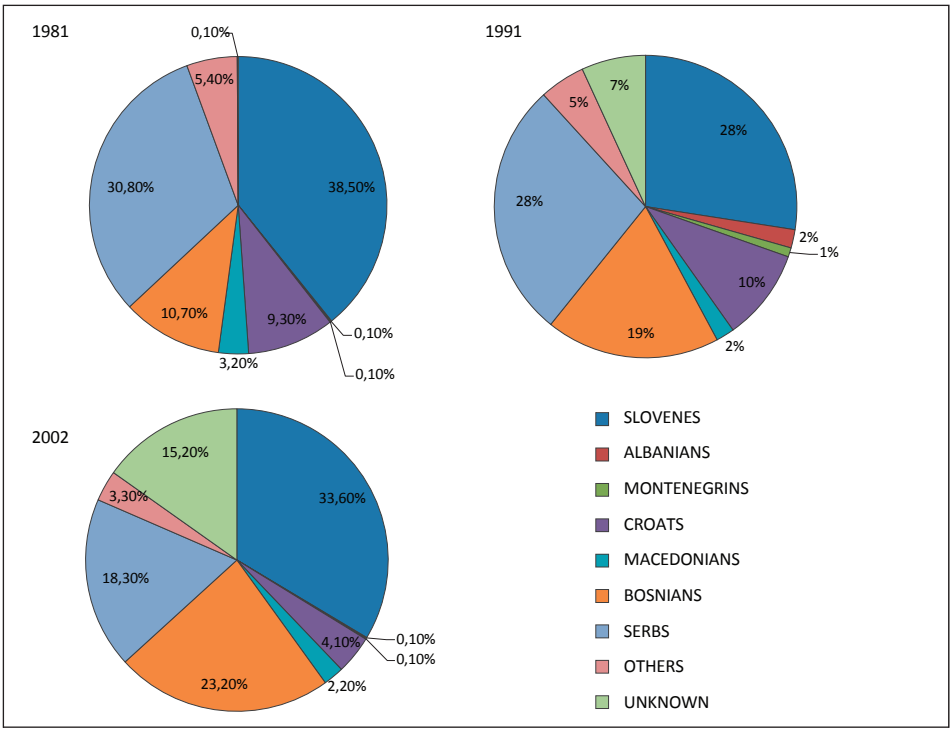
Source/Vir: Statistical Office of the Republic of Slovenia, 2011

The main characteristic of the Rakova Jelša and Sibirija is a very heterogeneous ethnic composition (Figure 5). It is the only area in Ljubljana where the non-Slovene population has absolute majority. According to census data there were only 38.5% of Slovenes in 1981, 28.0% in 1991 and 33.6% in 2002. This is the only part of the city with the domination of non-Slovene population and for this reason the most typical ethnic neighborhood in the city.

It is necessary to draw attention to the changed methodology of population census 2002, when the people were asked for the first time about national affiliation without a set of possible answers. In addition, the national definition was no longer required, so the proportion of those who did not want to answer the question of national origin increased substantially. It is necessary to take into account changes in the methodology used in the censuses, when comparing the national composition of the population between different years. In the 2011 population census, data on ethnic origin is no longer available. Indirect information which indicates the heterogeneous ethnic structure of the population in Ljubljana is the share of the inhabitants with the first residence in one of republics of the former Yugoslavia.

A comparison of the ethnic structure between 1981, 1991 and 2002 indicates certain trends and changes. In particular, the progressive diminishing number of Serbs and Croats, as

Figure 5: The ethnic structure of the population in the former local communities Rakova Jelša and Zeleni Log in 1981, 1991 and 2002
Slika 5: Etnična sestava prebivalstva v nekdanjih krajevnih skupnostih Rakova Jelša in Zeleni Log v letih 1981, 1991 in 2002



well as increasing share of Bosnians can be noticed. This is mainly a consequence of changes in immigration flows to Slovenia from the former Yugoslavia. In particular, after 2000 the immigration from Bosnia and Herzegovina increased, and on the other hand decreased from Serbia and Croatia. Most of immigrants from Croatia came until 1970 and from Serbia in the 1970s. The increased share of Slovenes in 2002 was certainly a consequence of gradual assimilation of the second and third generation of immigrants and mixed marriages.

Table 1: Selected socioeconomic characteristics of population in the former local communities Zeleni Log and Rakova Jelša in 2011
Preglednica 1: Izbrane socioekonomske značilnosti prebivalstva v nekdanjih krajevnih skupnostih Zeleni Log in Rakova Jelša v letu 2011

	Foreign nationals (%)	Immigrants from the former Yugoslavia (%)	Unemployed (%)	Population with completed primary school or less (%)	Population with university degree (%)
UML	7.7	17.5	10.4	21.2	27.3
Zeleni Log	28.3	38.0	15.6	37.3	9.2
Rakova Jelša	37.6	58.0	12.8	41.4	5.7

Source/Vir: Statistical Office of the Republic of Slovenia, 2011

For Rakova Jelša and Sibirija, besides the specific ethnic structure, a low socioeconomic status of population is characteristic as well. As noted in the first part of the paper, socioeconomic status of non-Slovene population does not differ significantly from the socioeconomic status of the Slovenes. This means that the area of Rakova Jelša and Sibirija was settled mainly with immigrants with a lower socioeconomic status. A good indicator of under-average socioeconomic status of population is significantly lower educational structure compared with Ljubljana (Table 1). The share of population with lower education (completed primary school or less) is about twice as high as in Ljubljana, and the share of the population with a university degree is about three times lower. The low socioeconomic status of the population can also be determined by the data on income. In 1992, average per capita income compared to the average of UML reached only 53% in Rakova Jelša and 58% in Zeleni Log. In the high-income neighborhood Murgle, which is located in the immediate vicinity, per capita income was about three times higher than in studied area. In 1999, former local communities Rakova Jelša and Sibirija had the lowest income per capita as well, reaching only half of the average value for the entire city (Krevs, 2002b, p. 30). Low socioeconomic status of the population is also reflected in above-average unemployment rate.

Some specific demographic characteristics are typical for the studied areas as well. Despite the gradual ageing of the population in recent decades, population of Rakova Jelša and Sibirija is still significantly younger than in the rest of the city. Higher share of younger and middle generation (25 to 54 years) and lower share of older generation (over 55 years) is particularly characteristic. The share of children is similar to city average. A relatively low proportion of children is the reflection of very high proportion of

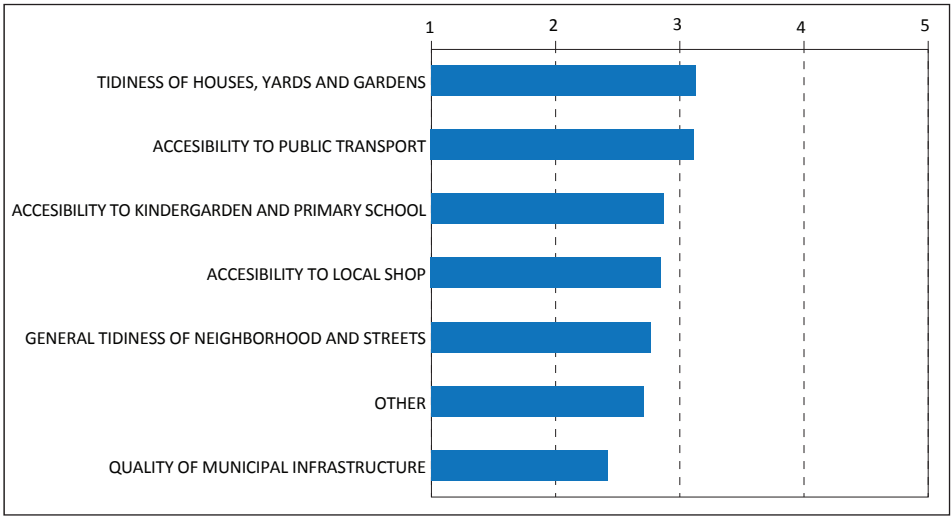
single-person households (51.3%). Such age structure is the reflection of immigration of younger generation and is typical for ethnic areas.

Low socioeconomic status of the population is reflected in low housing standard as well. The neighborhood is characterized by single-family houses; only some multi-residential units are present as well. Most of the houses have basic urban infrastructure (water, electricity), but the majority of them is not connected to the sewage system. Much lower housing area per person than in the rest of Ljubljana is also characteristic.

7 SATISFACTION OF THE POPULATION WITH THE QUALITY OF THE LIVING ENVIRONMENT

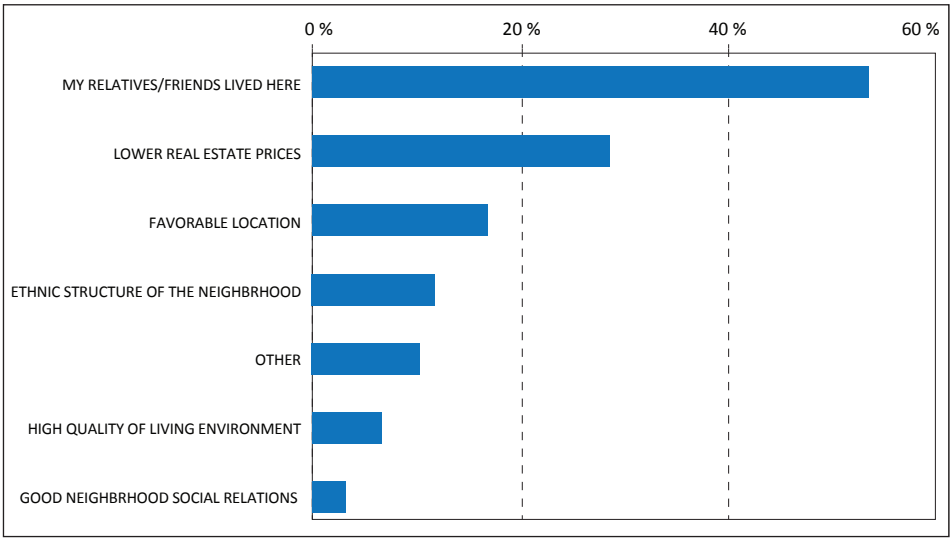
Despite the reputation of dysfunctional and problematic neighborhood, most of the surveyed population is relatively satisfied with the quality of the living environment (Figure 6). Residents are quite satisfied with the quality and maintenance of the houses, gardens and yards, and slightly less with general quality of living environment of the neighborhood. Most of them are satisfied or very satisfied with their house or apartment, despite the low housing area per person. Inhabitants are less satisfied with the accessibility to basic services and with the urban infrastructure in the neighborhood. In particular, they are not satisfied with the lack of sewage system, the accessibility to local food stores, kindergarten, primary school, public transportation, sport facilities and social center. They

Figure 6: Satisfaction of residents with the quality of the living environment (1 – very low, 2 – low, 3 – average, 4 – high, 5 – very high)
Slika 6: Zadovoljstvo prebivalcev s kvaliteto bivalnega okolja (1 – zelo nizko, 2 – nizko, 3 – povprečno, 4 – visoko, 5 – zelo visoko)



Source/Vir: Survey, 2015

Figure 7: The main reason for settling in this neighborhood
Slika 7: Glavni razlog za naselitev v tej soseski



Source/Vir: Survey, 2015

are also not satisfied with the general maintenance of the neighborhood (streets, public lighting). Residents are, on average, satisfied with the newest investments of UML in the neighborhood (construction of the sewage system and other urban infrastructure). Among the reasons for choosing this neighborhood, the following stand out: here are living my acquaintances, relatives or friends; low prices of housing; favorable location close to the city center and highway ring; a high proportion of the non-Slovene population (Figure 7).

As many as 60% of the surveyed population declared to be Slovenians, about 25% Bosnians, and the others Serbs, Croats, Albanians or Macedonians. The ethnic structure of the population included in the survey is thus quite different from the general ethnic structure of the neighborhood. Residents with Slovene nationality were obviously more willing to participate in the survey than the members of other ethnic groups. The survey is therefore not fully representative. It is clear that some degree of fear and distrust to participate in this kind of survey was present among the members of the other ethnic groups. Despite this fact, most of non-Slovene residents did not encounter any discrimination or intolerance because of their ethnic origin. They estimate their knowledge of Slovenian language as good or average. Most of the population feels accepted in the Slovene society. The results of the survey indicate a relatively high degree of assimilation of immigrants in a new environment.

8 CONCLUSION

Ethnic neighborhoods Rakova Jelša and Sibirija on the southern edge of Ljubljana are the only parts of the city with the majority of non-Slovene population. The area has

a reputation of a dangerous and unsettled neighborhood with a very low socioeconomic status of population. Demographic structure of the studied area is very specific and characteristic for ethnic areas: in average, population is younger, less educated and with lower incomes than the average for the whole urban area. The share of non-Slovene population is decreasing in spite of new immigration which indicates the process of assimilation of second and third generation into Slovene society. Low socioeconomic status of population is typical for ethnic areas and is confirmed by our research. Socioeconomic status of the population (education level, income, unemployment) is still low, but is gradually improving. Due to its good location and improved quality of living environment, the process of gentrification of the area can be expected in the future. The process of gentrification of the neighborhoods can be 'suspected' by new and more luxurious family houses but is still not confirmed by statistical data. Despite the gradual ageing of the population in recent decades, population of Rakova Jelša and Sibirija is still significantly younger than in the rest of the city. This is mainly a result of constant immigration of young population. The share of younger and middle generation and single households is particularly high, which indicates recent immigration.

Both neighborhoods are poorly equipped with municipal infrastructure; the main problem remains the lack of sewage system. In spite of that the quality of living environment was evaluated as good or average by the local population. Local population is not satisfied with accessibility to services, but the area has a very good location close to city center and highway ring. In recent years, Ljubljana municipality is investing in municipal infrastructure (roads, public transport, public lights and sewage system) and the quality of living environment is improving. Urban Municipality of Ljubljana has a goal to create a residential area with a comparable quality of living to other residential areas of the city.

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RAKOVA JELŠA IN SIBIRIJA – ETNIČNI ČETRTI V PREOBRAZBI

Povzetek

Območje Rakove Jelše in Sibirije je edini del Ljubljane, kjer delež neslovenskega prebivalstva presega 50 %. Gre torej za etnično območje oziroma etnično četrt, ki se je oblikovala s priseljevanjem prebivalstva iz območja nekdanje Jugoslavije od sedemdesetih let dalje. Stanovanjska gradnja je večinoma potekala brez gradbenih dovoljenj, gre za največje območje črnih gradenj v Ljubljani. Obe soseski imata 'sloves' problematičnega, nevarnega in neurejenega dela mesta. Poleg specifične nacionalne sestave prebivalstva so za preučevano območje značilni tudi močno podpovprečen socioekonomski položaj prebivalstva, pomanjkljivo urejena infrastruktura in splošna neurejenost bivalnega okolja. Glede na opisane značilnosti bi lahko zaključili, da imata Rakova Jelša in Sibirija značilnosti etničnega geta in sluma. Po drugi strani se soseski odlikujeta po odlični lokaciji v bližini mestnega središča in obvoznice. Večina prebivalcev je razmeroma zadovoljna s kvaliteto bivalnega okolja, postopoma se ureja tudi komunalna in infrastrukturna opremljenost.

V prispevku je v uvodnem delu prikazana problematika priseljevanja neslovenskega prebivalstva iz območja nekdanje Jugoslavije v Slovenijo in Ljubljano ter s tem povezan nastanek in razvoj etničnih četrti Rakova Jelša in Sibirija. V nadaljevanju so na osnovi popisnih podatkov opisane temeljne značilnosti socioekonomske sestave in preobrazbe prebivalstva omenjenih sosesk. S pomočjo anketiranja prebivalstva smo ugotavljali zadovoljstvo s kvaliteto bivalnega okolja in problematiko vključevanja priseljencev v novo okolje.

Stanovanjska gradnja nizkega standarda ima na Ljubljanskem barju že dolgo tradicijo, o čemer poroča že Vogelnik (1938). Naseljevanje prebivalstva z nižjim socioekonomskim položajem na severnem obrobju Ljubljanskega barja, zlasti priseljencev iz območja nekdanje Jugoslavije, se je nadaljevalo tudi po drugi svetovni vojni. Nelegalna individualna stanovanjska gradnja se je nadaljevala tudi v osemdesetih in devetdesetih letih 20. st. Z vidika črnograditeljev ima lokacija več prednosti: odlična prometna lega v bližini mestnega središča in blizu južne obvoznice, ugodna cena zemljišč in možnost dopolnilnega ukvarjanja s kmetijstvom.

Po popisu iz leta 2011 je na območju nekdanjih krajevnih skupnosti Sibirija in Rakova Jelša živelo 5106 oseb. Rast prebivalstva na preučevanem območju je bila najhitrejša v sedemdesetih in osemdesetih letih ter po letu 2000. To je skladno s splošnimi trendi priseljevanja prebivalstva iz območja nekdanje Jugoslavije. Poglavitna 'specifičnost' Rakove Jelše in Sibirije je heterogena nacionalna sestava prebivalstva. Gre za edino območje

v Ljubljani, kjer delež neslovenskega prebivalstva krepko presega polovico skupnega prebivalstva. Primerjava nacionalne sestave prebivalstva med leti 1981, 1991 in 2002 nakazuje na določene trende. Zlasti je očitno postopno zmanjševanje deleža Srbov in Hrvatov ter povečevanje deleža Bošnjakov. To je posledica spremenjenih tokov priseljevanja v Slovenijo iz nekdanje Jugoslavije. Povečan delež Slovencev v letu 2002 je prav gotovo posledica postopne asimilacije pripadnikov druge in tretje generacije priseljencev ter mešanih zakonov.

Območje Rakove Jelše in Sibirije poleg specifične nacionalne sestave opredeljuje tudi nizek socioekonomski položaj prebivalstva. Gre torej za etnično območje s koncentracijo prebivalstva nižjega socialnega sloja. Delež prebivalcev z nižjo izobrazbo (dokončana osnovna šola ali manj) je približno dvakrat večji kot v mestni občini Ljubljana, delež prebivalcev z univerzitetno izobrazbo pa približno trikrat nižji. Osnova za dohodnino na prebivalca v obeh nekdanjih krajevnih skupnostih je dosegla le nekaj nad polovico povprečne vrednosti za celotno mesto (Krevs, 2002b, str. 30). Nizek socioekonomski položaj prebivalstva se kaže tudi v nadpovprečni stopnji brezposelnosti.

V okviru raziskave smo izvedli tudi anketiranje lokalnega prebivalstva. Osnovni namen ankete je bil ugotoviti zadovoljstvo prebivalstva s kvaliteto bivalnega okolja ter preučiti položaj in asimilacijo priseljenega neslovenskega prebivalstva v novem okolju. Kljub ‘slovesu’ neurejene in problematične soseske je večina anketiranih prebivalcev razmeroma zadovoljna s kvaliteto bivalnega okolja. Prebivalci so manj zadovoljni z dostopnostjo do osnovne oskrbe in storitev ter s komunalno opremljenostjo soseske. Predvsem pogrešajo kanalizacijo, več trgovin z živili, vrtec, športni in družabni center, boljši dostop do postajališča mestnega avtobusa ter boljšo urejenost cest (pločnik, javna razsvetljava). Prebivalci so povprečno zadovoljni z urejanjem soseske s strani MOL.

Med razlogi za priselitev in bivanje v tej soseski močno izstopajo naslednji: tu so živeli moji znanci, sorodniki ali prijatelji, nižje cene nepremičnin oziroma zemljišč, ugodna lokacija in visok delež neslovenskega prebivalstva. Večina neslovenskega prebivalstva ne zaznava etnične nestrpnosti oziroma zaradi svoje etnične pripadnosti ni imelo večjih problemov. Rezulati anketiranja kažejo na relativno visoko stopnjo asimilacije priseljencev v novo okolje.

LANDSCAPE SUITABILITY EVALUATION AS A TOOL FOR DEVELOPMENT AND PROTECTION OF VALUABLE RURAL AREAS

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Review article
COBISS 1.02
DOI: 10.4312/dela.44.5.85-102

Abstract
This research studied application possibilities of landscape suitability evaluation as a methodological approach within landscape planning. It was presented in the case study of the wider area of Krka River through analysis of three Mediterranean agricultural crops. Results indicated (1) the efficacy of the procedure for obtaining optimised spatial potential for development as well as protection of valuable rural areas and (2) the possibility to include new methods into current planning regulations.

Key words: landscape qualities, protection, rural areas, sustainable development

VREDNOTENJE PRIMERNOSTI KRAJINSKE PODOBE KOT ORODJE ZA RAZVOJ IN VARSTVO DRAGOCENIH PODEŽELSKIH OBMOČIJ

Izvleček
V raziskavi smo preučevali možnosti uporabe metode vrednotenja krajinske primernosti v krajinskem načrtovanju. Metoda je predstavljena na študiji primera širšega območja reke Krke skozi analizo treh sredozemskih kulturnih rastlin. Rezultati kažejo (1) učinkovitost postopka za ugotavljanje optimiziranega prostorskega potenciala za razvoj in hkrati za varovanje dragocenih podeželskih območij in (2) možnosti vključevanja novih metod v obstoječe načrtovalske postopke.

Ključne besede: krajinske vrednote, varstvo, podeželska območja, trajnostni razvoj

1 INTRODUCTION

The role of rural landscape in everyday life has extremely complex significance because it can be considered from several very diverse aspects. For local residents, the primary role of rural landscape is to be a living environment, in which other roles as natural ecosystem, natural resource and cultural heritage must be adjusted. In rural spaces, agriculture is a traditionally dominant activity, but the demands of contemporary lifestyle have led to its inevitable abandonment. Allowing ecological succession and loss of valuable agricultural land leads to the neglect of cultural heritage consisting of buildings constructed by drywall techniques, a fundamental carrier of visual identity of agricultural landscapes (Butula et al., 2009) and identity of place (Torreggiani et al., 2014).

The main objectives of this paper are:

- the identification and preparation of the suitability models for the development of Mediterranean agricultural activity within a wider area of Krka River, with emphasis on Mediterranean fruit cultures such as olive, fig and pomegranate;
- cartographic presentation of suitability models;
- the comparison of obtained spatial models to determine differences between spatial demands while planning the development of different Mediterranean fruit cultures, and
- the comparison to decisions in the current spatial plan.

The accomplishment of the set objectives is possible through the multicriterial analysis of the landscape qualities for spatial evaluation. The final result is a synthesis of the desire for maximum fruit production efficiency while taking into account the advantageous characteristics of the research area. This would open the possibility of linking other activities that can be supportive with Mediterranean agriculture and, at the same time, reduce potential negative environmental impacts to a minimum.

2 REVIEW OF PREVIOUS INVESTIGATIONS

Since the research area covers the entire lower part of Krka River drainage basin, which is under protection as a significant landscape according to the Croatian law of nature protection and is situated next to the Krka National Park, Mediterranean agricultural production is considered acceptable for this area. Its advantages are not only the ecological origin of the product, but also the orientation to conservation and enhancement of the natural environment together with possibilities for connection to rural tourism (agritourism), which is considered the most appropriate for the research area. Jelinčić (2007) defines agritourism as a '… *form of tourism in which local residents offer tours within their own agricultural project and thus allow the visitor a direct participation in experiences of a certain site, such as planting, harvesting and food processing ...*'. The author also emphasizes that the local residents reach the greatest benefit from agritourism. It is necessary for the preservation of local communities, the fundamental pillars of development in this area. Bosnić (2011) states that '... *changes caused by globalization processes led to increasing interest of tourists for exploring different countries, new cultures, local*

customs and ways of life ...' and emphasizes the need for ' *... continuous design of new, innovative and quality tourist products based on originality of the resource base, tradition and in accordance with the principles of sustainable development.*' Krajnović, Čičin-Šain and Predovan (2011) emphasize: '*Rural tourism contributes to the preservation of natural, cultural and historical heritage of the receptive environment, preventing emigration from the so-called "passive region" and encourages revaluation of indigenous values of the receptive area*.'

Since one of the significant characteristics of the research area is a high presence of traditional drywalls surrounding the fertile soil, the fragmentation of agricultural land represents a challenge for sustainable and feasible agriculture with protection of cultural heritage. A solution could be found in setting up classical orchards, which according to Čmelik (2010) have a significant role in the protection of typical landscapes in rural and partly urban areas, and in conservation of biodiversity of agro-ecosystems.

For this paper, the fruit cultures of olive, fig and pomegranate were chosen due to the suitability of the Mediterranean part of Croatia for their successful cultivation. According to Guidelines for horticulture 2008–2013 (Smjernice razvoja voćarstva 2008–2013, 2009), the cultivation of these fruit cultures can contribute to a significant reduction in imports and can partially provide a surplus for export. The document also emphasizes that because of favorable climatic conditions in this area vegetation growth starts earlier and fruits ripen sooner which can contribute to the earlier supply of the continental and international markets of Central and Northern Europe with fruit.

3 METHODS AND MATERIALS

In this paper, the multicriterial analysis was conducted through the dual spatial analysis, also known as the landscape suitability analysis, which is characteristic for the landscape planning procedure. In fact, most contemporary landscape planning approaches are based on the concept of suitability (Golobič, Breskvar Žaucer, 2010). Landscape planning is a planning instrument that implements conservation goals into spatial application, because it includes all phases of spatial planning, from targeted stocktaking and evaluation, making of spatial models that include the goals of proposed intervention and activity in space to the monitoring process during the realization phase (Krause, 2001). This instrument does not consist of physical objects for implementation but is rather used for studying the processes of interaction between planned interventions and landscape values. Hence, landscape planning is a planning discipline which prepares the cognitions about natural values and incorporates conservation measures into spatial planning process (Marušič, 1986). Its application within the process of strategic decision-making is considered very significant, especially if the main goal is achieving sustainable development.

After gathering all the relevant information, the selection of essential criteria for making the landscape attractiveness and vulnerability concepts was made, and a multicriterial analysis with spatial evaluation was conducted in order to produce spatial models (attractiveness and vulnerability) of the research area for growing of selected Mediterranean fruit cultures (olive, fig and pomegranate). Overlaying those models resulted in

landscape suitability model, evaluated from three aspects: development, protective and compromise. The selected suitability model was overlaid with the spatial plan map of Šibenik-Knin County (2013) showing the assigned land use. The selection of a suitability model depends on the characteristics and landscape qualities of a specific location. Likewise, the results of vulnerability evaluation for one intervention or activity cannot be used for another intervention, because vulnerability to different developmental changes in the same landscape varies (Benson et al., 2004).

The results of the landscape attractiveness, vulnerability and suitability models are thematic maps. They represent an evaluation in a scale of numeric and descriptive values indicating the level of attractiveness, vulnerability and suitability. Used numeric values are in the range from 0 to 5, with 0 representing absolutely unattractive/invulnerable/unsuitable areas, and 5 representing the most attractive/vulnerable/suitable areas.

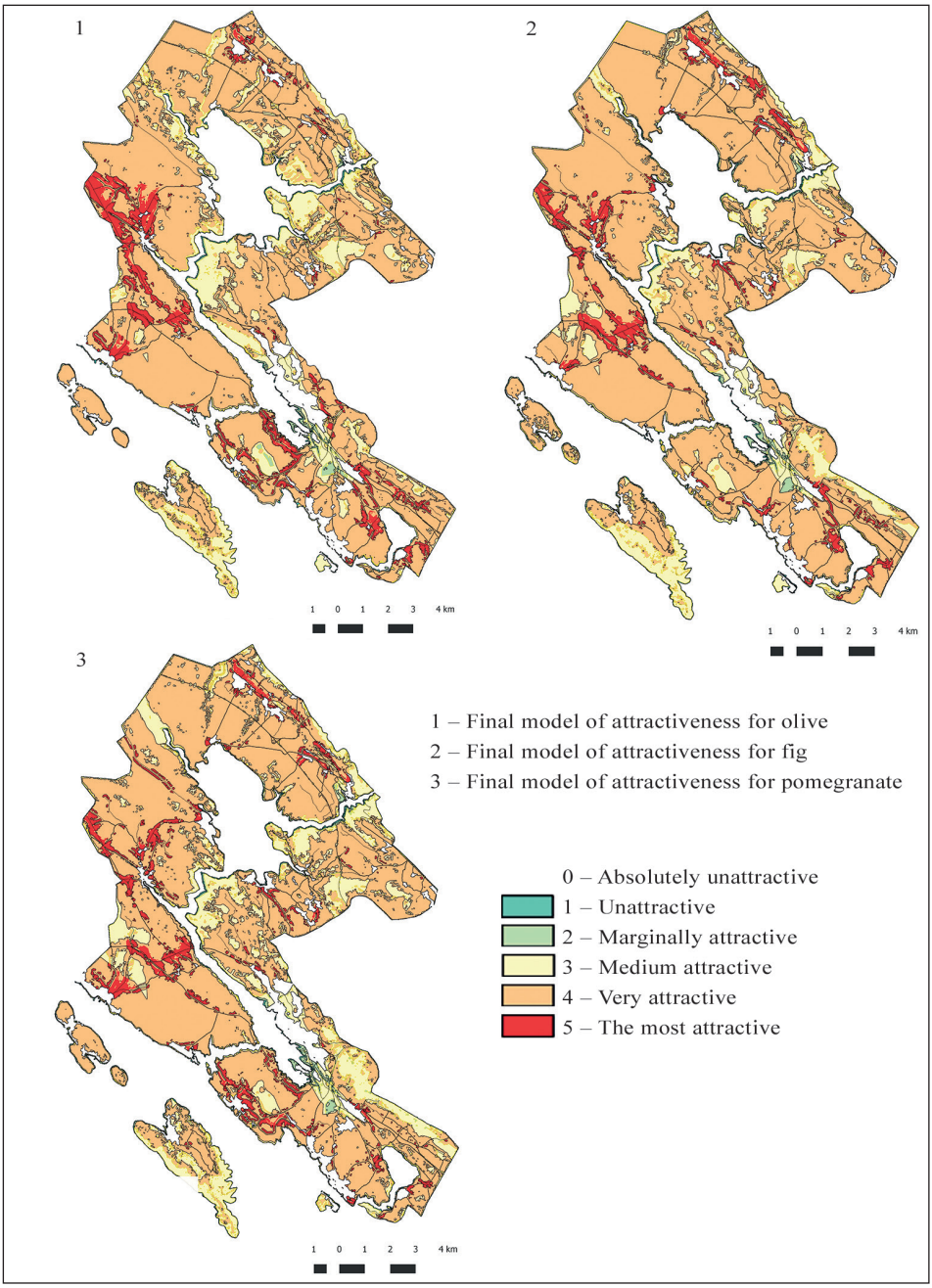
The mentioned procedures were conducted and results presented using the *ProVal*, *ArcGIS*, *QGIS* and *AutoCAD* software. During the data analysis in the GIS software *ProVal*, the size of homogeneous spatial units displayed in pixels was 10 by 10 m. The working process also included the analysis of gathered literature and publications, and visual and digital interpretation of cartographic and orthophoto maps.

4 RESULTS

4.1 Landscape attractiveness

The basic concept of landscape attractiveness for olive, fig and pomegranate growing was defined to make the attractiveness spatial model. The criteria were (1) terrain attractiveness, divided into two subcriteria: (1a) natural structure of terrain and (1b) economic aspect of soil tillage; (2) distance from waters for irrigation and (3) distance from transport infrastructure. The natural structure of the terrain was defined through elevation, slope of the terrain, dynamic of relief, soil permeability, terrain aspect, soil typology, soil capability and distance from temporary and permanent surface water. Due to the specific needs of each fruit culture for a certain type of soil, soil permeability, soil tillage and maintenance of plantations, the terrain attractiveness criteria were evaluated separately for each culture. The distances from water and infrastructure were evaluated equally for all cultures. According to the criteria set for olive, fig and pomegranate all submodels of landscape attractiveness were overlaid and a final attractiveness map for each culture was obtained (Figure 1). The maps show that the most represented areas are medium and very suitable for olive, fig and pomegranate growing.

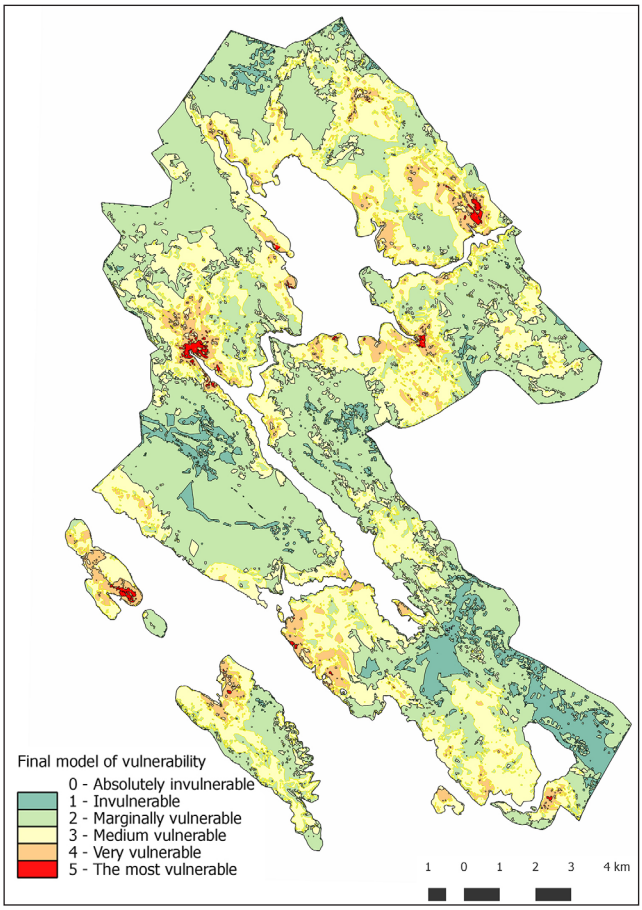
Figure 1: Final model of attractiveness for olive, fig and pomegranate growing
Slika 1: Končni model primernosti za oljko, smokvo in granatno jabolko



4.2 Vulnerability of landscape qualities

The interaction of landscape qualities and proposed activities of olive, fig and pomegranate growing is analyzed to determine the potential negative impacts. Landscape qualities which might be compromised by the proposed activities are (1) natural, (2) visual and (3) cultural qualities, and (4) the qualities of natural resources. The degradation may occur because of potential intensive soil tillage that can lead to changes in the soil structure and natural vegetation and to the soil and water pollution as well as to changes of landscape identity and image. Natural qualities (1) of the landscape were defined through the criteria of terrain, biodiversity, landscape diversity, surface waters, forest areas and predominantly natural vegetation area and the distance from nature protected areas and sources of pollution (settlements, traffic, industrial and craft areas and landfills of materials and

Figure 2: Final map of spatial vulnerability for olive, fig and pomegranate growing
Slika 2: Končna karta ranljivosti prostora za gojenje oljk, fig in granatnih jabolk



intermediate products). Visual qualities (2) of the landscape were defined through the recognizable elements of this area regarding the previously conducted analysis of visibility from the highway and from the state and county roads. By overlaying the models of visual potential and visibility, the final model of visual qualities has been obtained. Cultural qualities (3) of the landscape were defined through the distance from registered and protected monuments of cultural heritage, archeological sites and areas, traditional agricultural land use (traditional vineyards and olive orchards), traditional land subdivisions (drywalls and other stone structures) and settlements. Qualities of natural resources (4) of the landscape were defined through the potential for utilization and protection of forests, agricultural land use and tourism potential along the sea and other water bodies.

By overlaying the submodels of natural, visual, cultural qualities and qualities of natural resources, the final map of landscape vulnerability has been obtained (Figure 2). The most vulnerable are those areas that have the most expressed qualities. These are primarily natural forest and water areas, archeological sites and areas with high visual potential, and the areas with natural resources for potential development.

4.3 Landscape suitability

The final models of attractiveness and vulnerability were overlaid to obtain the final spatial model of landscape suitability for olive (Figure 3), fig (Figure 4) and pomegranate (Figure 5) growing. The final suitability model was evaluated from three aspects: development, protective and compromise. In evaluation of the development aspect, emphasis was given to the attractiveness model. In evaluation of the protective aspect, emphasis was given to the vulnerability model to protect landscape qualities of the area. In evaluation of the compromise aspect, both models, attractiveness and vulnerability, were valued equally to provide equal relation of the spatial development and protection.

The comparison of the percentages of the areas resulted as suitable for olive, fig and pomegranate growing indicates that the largest share of the most suitable areas is obtained within the development aspect model, while the largest share of the absolutely unsuitable areas within the protective aspect model. The share of the areas within the compromise aspect model ranges between the protective and developmental aspects according to the share of the most suitable and the absolutely unsuitable areas. Other values are listed in Tables 1, 2 and 3, separately for each culture.

Figure 3: Value maps of protective, development and compromise aspects of suitability for olive growing
Slika 3: Karte vrednotenja varovalnega, razvojnega in kompromisnega vidika primernosti za ureditev oljčnih nasadov

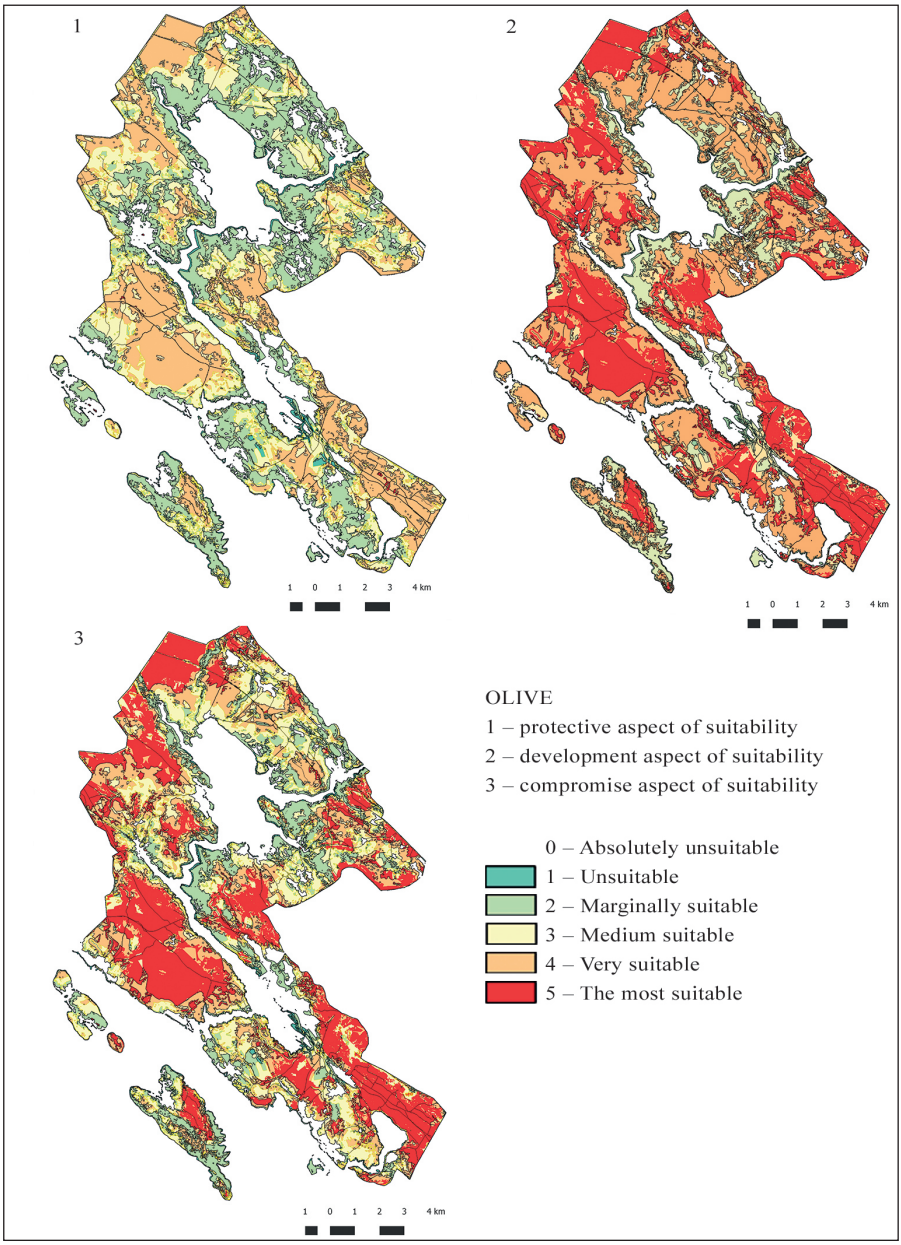


Figure 4: Value maps of protective, development and compromise aspect of suitability for fig growing
Slika 4: Karte vrednotenja varovalnega, razvojnega in kompromisnega vidika primernosti za ureditev nasadov smokev

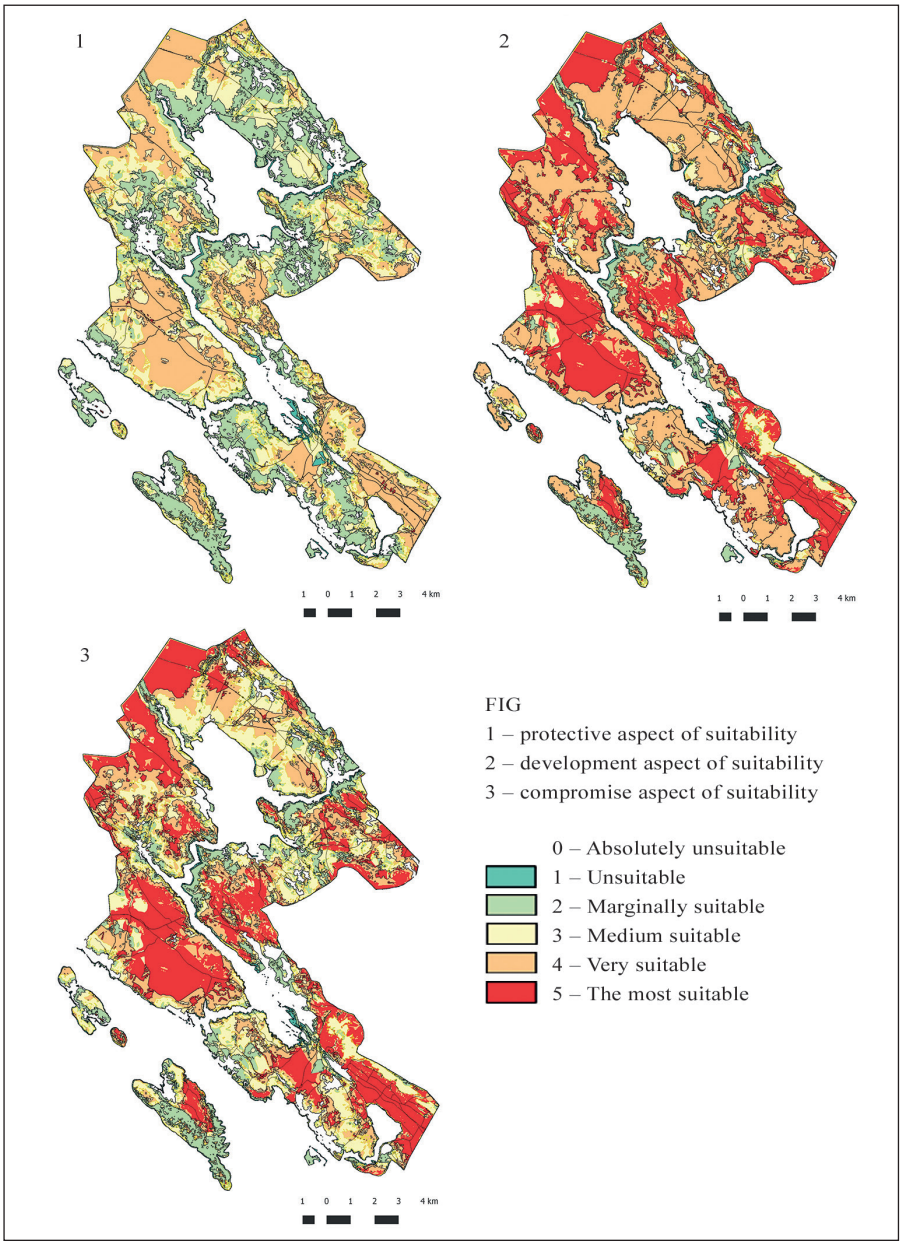


Figure 5: Value maps of protective, development and compromise aspect of suitability for pomegranate growing
Slika 5: Karte vrednotenja varovalnega, razvojnega in kompromisnega vidika primernosti za ureditev nasadov granatnih jabolk

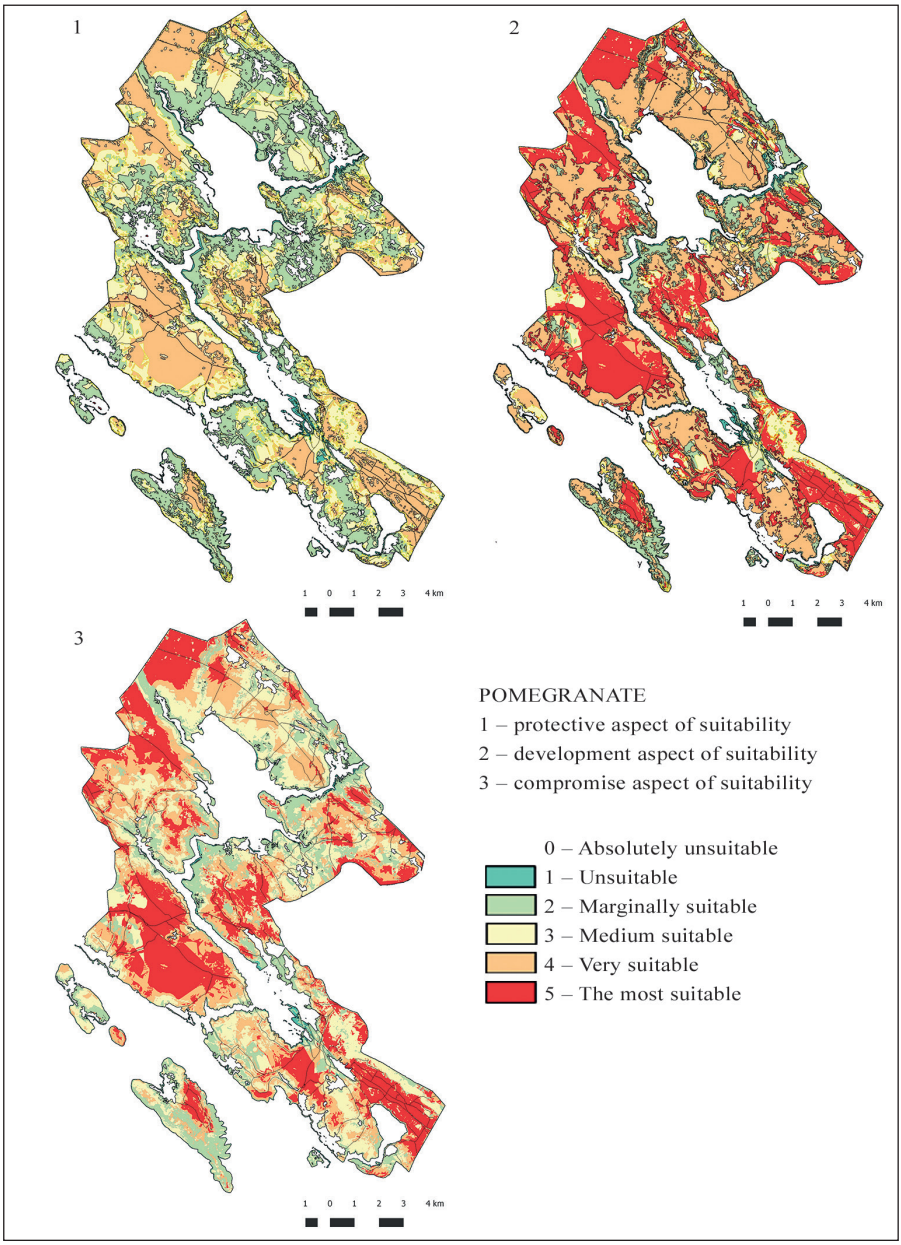


Table 1: A comparative view of the suitability shares for olive growing
Preglednica 1: Primerjalni pregled deležev primernosti za gojenje oljke

Suitability value	Protective aspect (area in %)	Development aspect (area in %)	Compromise aspect (area in %)
0 Absolutely unsuitable	13,36	7,92	9,4
1 Unsuitable	1,25	0,96	0,63
2 Marginally suitable	31,26	13,54	16,1
3 Medium suitable	28,29	8,46	22,62
4 Very suitable	25,79	39,42	23,72
5 The most suitable	0,05	29,7	27,53

Table 2: A comparative view of the suitability shares for fig growing
Preglednica 2: Primerjalni pregled deležev primernosti za gojenje fig

Suitability value	Protective aspect (area in %)	Development aspect (area in %)	Compromise aspect (area in %)
0 Absolutely unsuitable	12,91	7,47	8,48
1 Unsuitable	1,53	1,27	0,89
2 Marginally suitable	30,24	9,88	13,55
3 Medium suitable	29,8	9,38	25,47
4 Very suitable	25,48	43,93	25,08
5 The most suitable	0,04	28,07	26,53

Table 3: A comparative view of the suitability shares for pomegranate growing
Preglednica 3: Primerjalni pregled deležev primernosti za gojenje granatnega jabolka

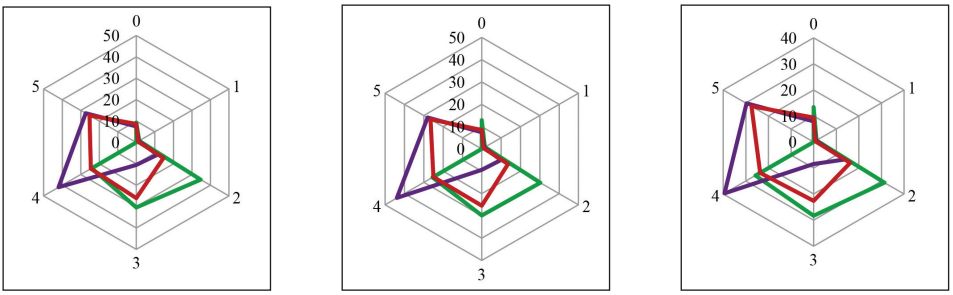
Suitability value	Protective aspect (area in %)	Development aspect (area in %)	Compromise aspect (area in %)
0 Absolutely unsuitable	9,28	7,49	8,61
1 Unsuitable	1,51	1,26	0,89
2 Marginally suitable	34,72	11,4	14,69
3 Medium suitable	30,4	10,57	26,04
4 Very suitable	24,07	41,97	24,54
5 The most suitable	0,02	27,31	25,23

5 DISCUSSION

To protect the rural landscape and its natural, visual and cultural qualities as well as qualities of natural resources, the compromise aspect of landscape suitability is selected as the final spatial model for all three cultures. Within the evaluation procedure through predetermined criteria, equal significance has been attributed to the protection and to the development of the research area. Thereby, there was enough area left that was evaluated

as very suitable and the most suitable (Figure 6) where it is possible to encourage the development and maintain the landscape qualities.

Figure 6: Comparative preview of spatial suitability aspects for olive, fig and pomegranate growing
Slika 6: Primerjalni pogled na primernostni vidik za gojenje oljke, smokve in granatnega jabolka



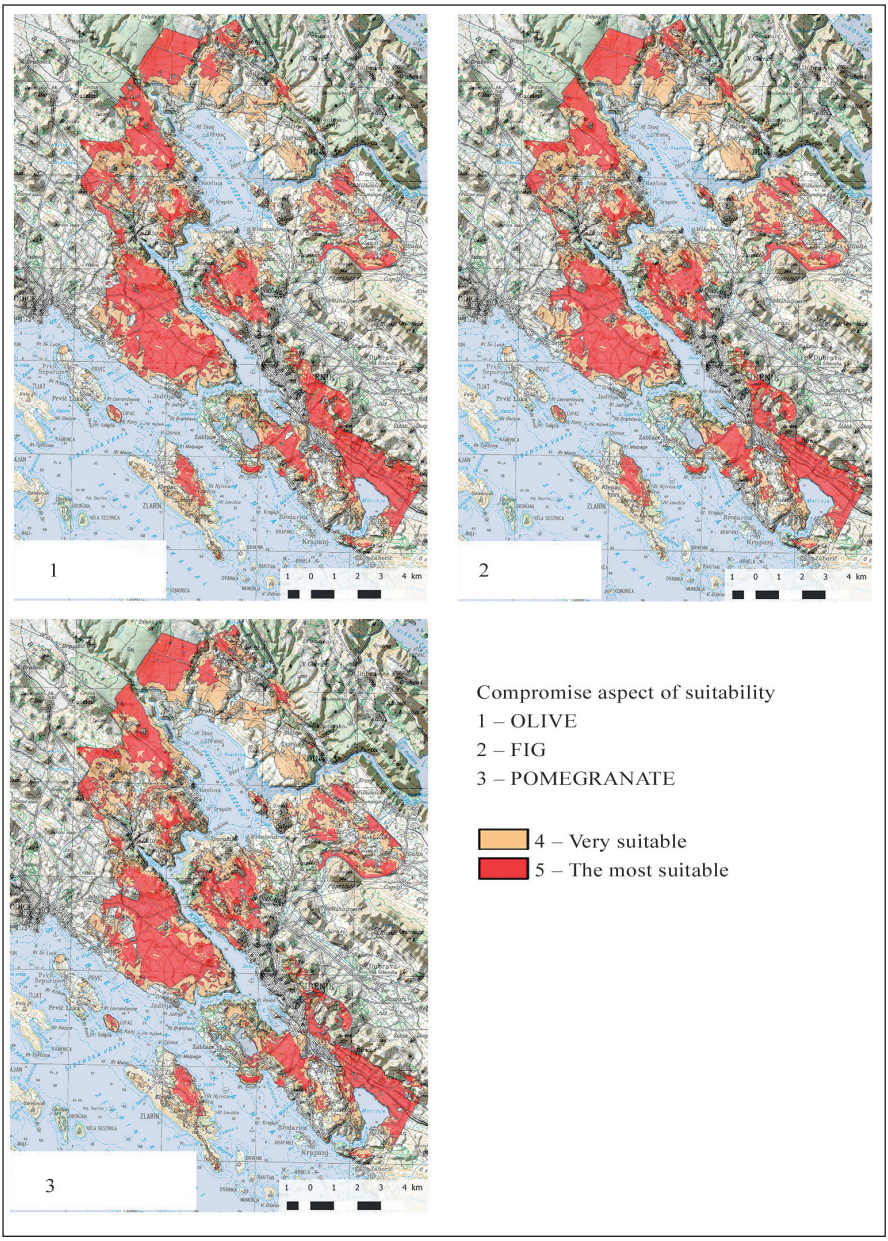
Olive Fig Pomegranate

Legend:
Development aspect
Protective aspect
Compromise aspect

The example of all three cultures shows that the most suitable areas cover almost the same surface in the compromise and the development aspect of suitability. Although the landscape vulnerability analysis of the wider area of Krka River proved its wealth of natural resources, forest and water areas, the space also abounds in cultural values. The most significant are traditional structures of agricultural land division, drywalls and other stone formations, which are, due to abandonment, left to ecological succession. This results in the loss of valuable agricultural land and devastated cultural heritage. The compromise aspect of landscape suitability for olive, fig and pomegranate growing in the research area enables the development of these activities, and at the same time, protect natural, visual an cultural landscape qualities, as well as qualities of natural resources.

Overlaying the selected compromise landscape suitability model for olive growing with the land use map (Figure 7) clearly shows that the most suitable (27,53%) and very suitable areas (23,72%), represented in roughly equal proportions within the entire research area (Figure 6), cover the areas already used for agriculture or areas that have visible remains of the traditional agriculture (drywalls and other stone formations). Those areas are classified as particularly valuable agricultural land, away from surface water and close to settlements and roads to ensure easier soil tillage and further processing of fruits after harvest. Less suitable are areas at an altitude of less than 30 meters, close to surface waters and overlapped with forest areas.

Figure 7: Suitable and very suitable areas for (1) olive growing, (2) fig growing and (3) pomegranate growing
Slika 7: Najprimernejša in zelo primerna območja za ureditev nasadov (1) oljke, (2) smokve in (3) granatnega jabolka



Overlaying the selected compromise suitability model for fig growing with the land use map (Figure 7) clearly shows that the most suitable (26,53%) and very suitable areas (25,08%), represented in roughly equal proportions within the entire research area (Figure 6), cover the areas already used for agriculture. Those areas are classified as particularly valuable and valuable agricultural land, away from surface water and close to settlements and roads. Less suitable are areas with higher landscape vulnerability but also possibility for degradation and contamination due to processing, which are close to surface water and forest areas.

Overlaying the selected compromise suitability model for pomegranate growing with the land use map (Figure 7) clearly shows that the most suitable (25,23%) and very suitable areas (24,54%), represented in roughly equal proportions within the entire research area (Figure 6), cover the areas already used for agriculture. Those areas are classified as particularly valuable and valuable agricultural land, close to settlements and roads, away from surface water and forest areas, in order to protect them considering their high vulnerability level.

Very high potential for Mediterranean agriculture within the research area is apparent from the data on the prevalence of the most suitable and very suitable areas of about

Figure 8: Suitability of the Srima village land
Slika 8: Primernost območja v zaledju naselja Srima

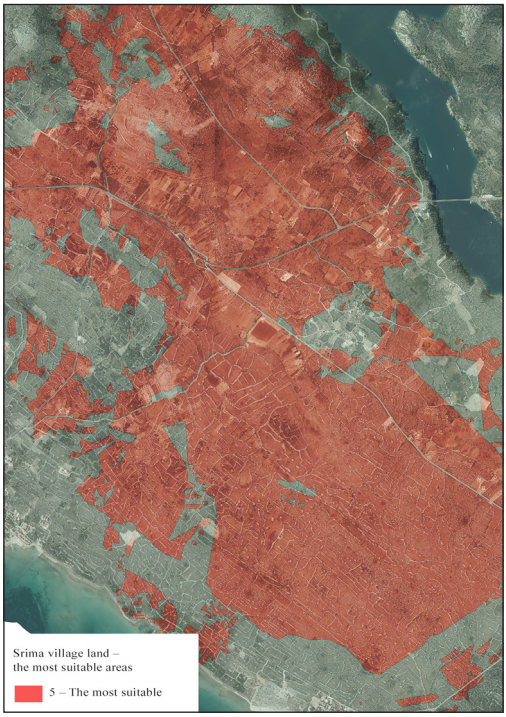
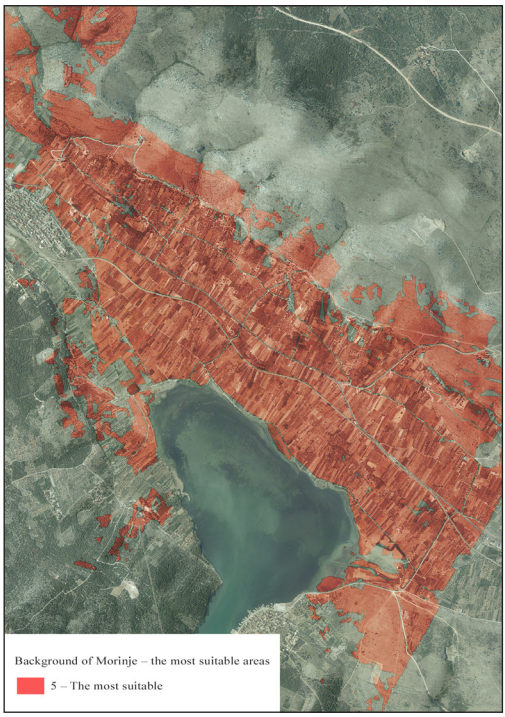


Figure 9: Suitability of the background of Morinje
Slika 9: Primernost območja v zaledju Morinja



50% (Figure 6) in all three examples of compromise models. A large part of the area classified as absolutely unsuitable are water surfaces and settlements, where growing is impossible anyway.

The landscape of the area is determined by numerous elements, its basic natural and physical geographic characteristics such as climate, geomorphological, hydrological and soil characteristics, vegetation and social factors that include the presence of man and the intensity of his work (Kalogjera, 1996). In the background of the Srima settlement (Figure 8), currently unused agricultural land and area of cultural heritage, the revitalization of which is necessary if the historically valuable drywall structures and land division patterns are to be preserved, the results show a great potential for the development of analyzed cultures.

Besides the unused land of the Srima village, high potential exists around the Bilice settlement, too, currently partially used for agriculture, and around Morinje, where the land is currently very well utilized (Figure 9).

6 CONCLUSION

This paper indicates the great potential of the research area which should be taken into account during spatial, economic and developmental planning at a strategic level. It also shows the possibility of including multicriterial analysis in the spatial planning process. This would simultaneously enable the development of the area and the protection of its qualities, with a particular emphasis on valuable agricultural areas, and create solutions for long-term sustainable development, not only in physical but also social and economic terms.

Overlaying the most suitable and very suitable areas of compromising models for olive, fig and pomegranate growing shows the high potential for development of Mediterranean agriculture in the research area, with adequate protection of natural, visual and cultural qualities as well as qualities of the natural resources of the landscape. About the same area is suitable for all three cultures. The differences between the cultures in positions of the most suitable and very suitable sites occur because the attractiveness submodels were evaluated according to the specific needs of each culture separately. While the olive tree favours good soil permeability on higher slopes to ensure the best possible soil permeability, the fig tree and the pomegranate are more resistant to the retention of water in the soil and favour flatter terrains where water remains for a longer time period after heavy rains (Miljković, 1991). All the three cultures favour well insolated places, especially southeastern, southern and southwestern exposures. The vicinity of traffic infrastructure and water resources, such as wells and cisterns, is necessary to ensure abundant yields and facilitate easier access and maintenance of plantations.

Although the shares of the areas, classified as the most suitable and very suitable for agriculture, are approximately equal, small deviations can be noticed. They show that the natural features and spatial characteristics and conditions are the most conducive to the development of olive, while slightly less to the pomegranate and the fig.

The application of the multicriterial analysis approach, used in this paper, includes the adjustment of the demands of agricultural development with protective goals determined through the existing and potential spatial qualities. It can contribute to the revitalization of increasingly neglected rural areas of Croatia. In this way, the development of individual cultures can be directed to areas with the greatest potential for achieving development requirements, without compromising protected landscapes and culturally valuable areas and taking into account the need of local communities of the area, which are the fundamental driving force of development.

ACKNOWLEDGEMENT

The paper presented has emerged from the scientific project *Landscape qualities protection within the rural development policy of Croatia*, realized with the support of the Ministry of Science, Education and Sport of the Republic of Croatia.

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VREDNOTENJE PRIMERNOSTI KRAJINSKE PODOBE KOT ORODJE ZA RAZVOJ IN VARSTVO DRAGOCENIH PODEŽELSKIH OBMOČIJ

Povzetek

Trajnostni razvoj je zelo pogost termin v vseh hrvaških razvojnih strategijah in dokumentih, tudi v podeželskih in kmetijskih, udejanja pa se s prostorskimi načrti na lokalnem nivoju. Ko se kmetijska zemljišča spreminjajo v neko drugo rabo ali se prepustijo procesom ekološke sukcesije, je degradacija krajinskih kvalitet neizogibna.

Da bi zagotovili trajnostnost prihodnjega razvoja, je zelo pomembno, da so poleg vrednotenja razvojnih zmožnosti v proces prostorskega načrtovanja vključeni tudi varovalni ukrepi.

Članek obravnava potencialno degradacijo krajinskih kvalitet zaradi razvoja tradicionalnega mediteranskega kmetijstva z vidika varstva krajine. Predstavljen je metodološki pristop k vrednotenju primernosti prostora za gojenje nekaterih mediteranskih kmetijskih kultur (oljka, smokva, granatno jabolko) na primeru širšega območja ob reki Krki (Dalmacija). Rezultati kažejo (1) učinkovitost postopka pri določanju optimalnega prostorskega potenciala tako za razvoj kot varovanje dragocenih ruralnih območij in (2) možnosti vključitve novih metod v obstoječe načrtovalske postopke. Aplikacija predstavljene analize primernosti kot metode krajinskega vrednotenja omogoča sistematični pristop k optimizaciji sprejemanja odločitev v procesu prostorskega načrtovanja, saj hkrati upošteva vse vidike razvojnih ciljev in tudi krajinskih kvalitet. Predstavljena metoda lahko torej prispeva k varovanju dragocenih ruralnih območij, kar je pomemben vidik strateškega pristopa k trajnostnemu razvoju.

(Prevedel K. Natek)

COLLABORATIVE AND INDIVIDUAL APPROACH IN THE FLIPPED LEARNING BY ASSESSING STUDENTS ON THE BASIS OF SPATIAL DATA QUALITY CONTROL

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Review article
COBISS 1.02
DOI: 10.4312/dela.44.6.103-133

Abstract
A variant of flipped learning based on intensive usage of geomedia in geography and geoinformatics has been developed and presented in the article. Students assessed quality of mapping according to ISO standard. The results show that individuals are considerably better than groups, especially in tasks which required the use of critical judgement, deeper understanding and creative thinking. However, groups are more successful in finding unique differences, where synergy effect of the collaborative learning is an important factor.

Key words: flipped learning, individual and collaborative learning, Bloom's taxonomy, geomedia, didactics of geography, grading, spatial data quality

SODELOVALNI IN INDIVIDUALNI PRISTOP PRI OBRNJENEM UČENJU Z OCENJEVANJEM ŠTUDENTOV NA PODLAGI KONTROLE PROSTORSKIH PODATKOV

Izvleček
V članku je predstavljena inovativna različica pristopa obrnjenega učenja, ki temelji na intenzivni uporabi geomedijev pri poučevanju geografije in geoinformatike. Študentje ocenjujejo kakovost kartiranja na podlagi ISO standarda. Rezultati kažejo, da so posamezniki bistveno boljši v primerjavi s skupinami pri tistih nalogah, ki zahtevajo kritično presojo, poglobljeno razumevanje snovi in kreativno razmišljanje. Skupine so uspešnejše pri ugotavljanju unikatnih razlik, kjer prihaja do izraza sinergijski efekt kot posledica sodelovalnega učenja.

Ključne besede: obrnjeno učenje, individualno in sodelovalno učenje, Bloomova taksonomija, geomediji, didaktika geografije, ocenjevanje, kakovost prostorskih podatkov

1 INTRODUCTION

The objective of this paper is to introduce and test the flipped learning approach based on intensive usage of geomedia in geography and geoinformatics teaching. We propose an experimental design of measuring and assessing the 'derivative ground truth' of the field campaigns with an aid of grading criteria and grading reference based on the outcome of combined individual and collaborative work. Experimental design enables deciphering the differences in the outcomes of individual and collaborative learning, where the collaborative learning is additionally aided with the interactive just-in-time instructions. We also aim to establish an innovative technique, which links a variant of flipped learning approach with a process of quality assessment of geographical data and should be suitable for teaching and learning material of various complexities. We foremost assess the impact of collaborative learning and the usage of interactive geomedia tools in the flipped learning settings.

The motivation of the study is to propose a design composed of complex tasks presented to students in order to obtain a powerful combination of the expected results:

In didactics:

- testing contemporary didactic approaches in geography and geoinformatics: flipped learning, individual/collaborative learning;
- giving practical knowledge to students;
- enabling more reliable grading of students' knowledge.

In geoinformatics (for research purposes):

- testing international standard ISO/TC 211 19157:2013 geographic information – data quality standard (shortly: ISO 19157);
- testing the quality of mapping.

The study is focused on the goals important in didactics, but the context of geoinformatics will also be described.

1.1 Flipped learning and collaborative work

The emergence and integration of digital technologies in the educational process, coupled with advances in data storage, media presentation and permanent, ubiquitous connectivity, have laid down the foundations for the appearance and establishment of new techniques, concepts and approaches in didactics. The traditional transmissive pedagogical approach is not appropriate nor sufficient in the utilization of information and communication technology (Tay et al., 2012). Consequently, new approaches, such as flipped learning and online learning, were developed to address progressive changes in society and the emergence of new technology in everyday life.

Flipped learning has turned the traditional information transfer model (usually transmissive pedagogical approach) literally upside-down (Mazur, 2009). Flipped learning has switched or flipped the concept of student's work, where work traditionally done in class becomes the work transacted prior to in-class sessions (work done at home). Direct instruction and lecture are delivered to the students' prior lesson, usually via an online

learning environment (platform) in a form of videos or podcasts. Consequently, the teacher can engage students in higher levels of Bloom's or SOLO (Bigg's) taxonomy during class time, such as application, analysis, and synthesis (Anderson, Krathwohl, 2001; Bergmann, Overmyer, Willie, 2013; Kim, Park, Joo, 2014; O'Flaherty, Phillips, 2015).

Student engagement is one of the primary components of effective teaching and is crucial for successful learning (O'Flaherty, Phillips, 2015). Flipped learning is student-centred, where student engagement is crucial, and includes more active learning strategies in the classroom teaching, like presentations, group discussion or problem based learning (Krevs, 2007; Calvo Melero, Palanques, Krevs, 2008; Kim et al., 2014). The teachers' role in flipped learning paradigm has moved from knowledge delivery (transmission model) to facilitating knowledge (Inae, Sung, 2013). Students participating in flipped learning classes are acquiring and sharing knowledge through active cooperation – collaborative learning, often with the aid of online forums (Kim, Park, Joo, 2014; Westermann, 2014). Collaboration is not just a simple cooperation as it triggers the whole process of learning (Dooly, 2008), which results in better performance of 'collaborative learning' students than non-collaborative students, especially for more difficult tasks (Tullis, Benjamin, 2011).

Flipped learning has many prospective benefits, such as one-on-one time with students (rarely used in traditional transmissive pedagogical approach), missed lectures (students can obtain material after the lesson), possibility to use collaborative learning, self-paced learning (students can align learning pace with their learning style) coupled with just-in-time instruction (Tullis, Benjamin, 2011; Bergmann, Overmyer, Willie, 2013; Kim et al., 2014; Roach, 2014). Just-in-time instruction (students receive instructions in the moment of confusion) and increased interactivity are integral part of flipped learning and is usually executed during in-class sessions (Novak et al., 1999; O'Flaherty, Phillips, 2015).

The basic concept of flipped learning, assigning pre-class 'reading' to the students, is not new (Moffett, Mill, 2014). However, what is new is the medium and learning environment that flipped learning is using to convey the learning material. New education technologies often referred to as information and communications technology (ICT) are the cornerstone of the revitalised basic concept of the flipped learning (Moffett, Mill, 2014). As an example of ICT we can refer to the E-learning system at the Faculty of Arts which was introduced back in 2004. Its role became progressively more pivotal as the repository of course reading material, monitoring students' progress, pre-class reading and online discussions.

The emergence of ICT is important twofold:

- it can enhance student learning, and
- the current millennial generation (millennials), individuals born between 1982 and 2002, are expecting the usage of ICT (Prensky, 2001).

According to O'Flaherty and Phillips (2015), the millennial generation requires learning and other learning activities to be reactive and immediate, which could be easily achieved with the flipped learning approach.

Immediate response in delivering, gathering or transmitting information is possible due to the internet. In flipped learning, the internet plays a crucial role in the learning

process as the medium for accessing learning software, or as the medium for networking with other learners and/or teachers (Carnoy, 2004). Moreover, millennials are expecting ubiquitous and permanent connectivity through the internet (Strobl, 2014). Massive amount of information produced and consumed nowadays contain a geographical (location based) component, which is essential part of geomedia. According to Lindner-Fally et al. (2010), a geomedia is defined as 'any form of media that incorporates or portrays geographical information.' This includes, for example, news, multimedia, telecommunications, social networks, geo-tagged pictures and written descriptions of paths and places (Donert, Parkinson, Lindner-Fally, 2010; Strobl, 2014). If we use the internet, search for travel directions or go on vacation, we are dealing with geomedia to access geographical information (Lindner-Fally et al., 2010). The major issue of massive production of geographical data is the lack of geographical data quality control and the scarcity of procedures for quality assessment of geographical data.

1.2 Grading and assessment of students

1.2.1 Bloom's taxonomy

The original Bloom's taxonomy has defined six categories in the cognitive domain, which are part of the learning process (Krathwohl, 2002). The categories are ordered from simple to complex and from concrete to abstract: knowledge, comprehension, application, analysis, synthesis, and evaluation. Except the application category, all other five categories are divided into subcategories (Anderson, Krathwohl, 2001).

The results of the intended learning outcome (e.g., to understand and explain the usage and outcome of intersect geoprocessing tool) are usually constituted of the learning content and description of the cognitive process. The objectives usually consist of a noun phrase (e.g., intersection geoprocessing tool) and a verb (e.g., to understand and explain – the cognitive process) (Krathwohl, 2002). Bloom's original taxonomy is labelled as unidimensional as each category embodies both a noun and verb aspect (Krathwohl, 2002). This issue was addressed with the new revised Bloom's taxonomy suggested by Anderson and Krathwohl (2001), which incorporated important changes of the six categories and their subcategories. The major difference is the change in category names from noun to verb form to fit the way they are used in objectives. The revised taxonomy is constituted of the following six categories: Remember (previously Knowledge), Understand (Comprehension), Apply (Application), Analyse (Analysis), Evaluate (Evaluation) and Create (Synthesis). However, in the higher education, applying SOLO (Bigg's) taxonomy would be more suitable, where it is, in many cases, easier to follow the progress of students, but our paper is focused to the Bloom's one.

1.2.2 Assessment and grading

Our research has integrated the whole scope of Bloom's cognitive domain of taxonomy. According to Maclellan (2001), it is very important to assess the full range of

learning, and should not be limited to only a few aspects (e.g., understanding and applying). This is especially important in conjunction with the overall grading as the final grade represent only a fraction of a student's activity and is therefore important to cover the full aspect of the learning process (Marentič Požarnik, Peklaj, 2002; Norton, 2004).

Many authors (Brown, Bull, Pendlebury, 1997; Birenbaum et al., 2005) argue that the assessment plays a crucial role in student's process of learning. As such, assessment must address the needs of students required in the pervasive, interactive and connected global world (Birenbaum et al., 2005). Assessment ought to be supported also by the ICT (Norton, 2009) and should incorporate the grading system, reporting of the student's achievements (student progress) and provided feedback to students (Hernández, 2012).

In our flipped learning settings, a continuous assessment practices are used, which is a formative function of learning (assessment for learning) (Norton, 2009) in order to provide effective just-in-time instructions to students. We have additionally encouraged students to use the collaborative online document to share their opinions and understanding of the assessment criteria.

2 DATA QUALITY, PARTICIPANTS AND COURSE AIMS

2.1 Elements of data quality according to ISO standard

Standards help to make our everyday lives easier and better even if we are not aware of using them. They increase interoperability that particular products or parts of them can reliably work together. However, in some cases they can inhibit the development of our society. To apply standards to a real world and everyday life they need to be unambiguous and easy to implement (Scholz, Lu, 2014).

The data quality is one of the key elements that affect not only the relevance, but also the usefulness of spatial data (Devillers, Jeansoulin, 2006). Each basic category, with the exception of the usability, is composed of two to four elements (Table 1).

Table 1: Structure of the ISO 19157
Preglednica 1: Sestava standarda ISO 19157

Completeness	Logical consistency	Usability element	Positional accuracy	Thematic accuracy	Temporal quality
Commission; Omission	Conceptual consistency; domain consistency; format consistency; topological consistency	–	Absolute or external accuracy; relative or internal accuracy; gridded data positional accuracy	Classification correctness; non-quantitative attribute correctness; quantitative attribute accuracy	Accuracy of a time measurement; temporal consistency; temporal validity

Source/Vir: ISO/FDIS, 2013

Although the ISO 19157 is intended to use for users and producers of data, it is often proved in practice that the popularity of particular data, e.g., number of downloads, spatial extent, availability, reputation of the manufacturer, cost, etc., is the only suitable criterion of data quality for users (Boin, Hunter, 2009). Further on, the data quality is usually associated to the fitness for using these data for a specific purpose. Most of the basic measures used for defining data quality are usually aggregating geographical information quality to the map level, rarely on a feature level (Leibovici, Pourabdollah, Jackson, 2013).

2.2 Students' characteristics description

The testing was carried out by 76 participants (students) who attended two academic courses. In the first group, there were 72 undergraduate students of the second year from the Department of Geography at the Faculty of Arts, University of Ljubljana (FA). In the second group, there were four postgraduate students (4 individual students) of the Faculty of Information Studies in Novo mesto (FIS). The group of FA students was composed of 28 male and 44 female students. The age of students ranged between 20 and 32 with the average of 22.7 years. The group of FIS students was constituted of 2 female and 2 male students with the minimum age of 28 and maximum of 42 years and the average of 34.5 years.

The main reason for selecting such distinctive groups of students was to assess whether the participants studying the relevant studies have significant advantage over the participants with a non-relevant studies background. Relevant studies are those where students are introduced to the geographical space and are trained to develop spatial perception, e.g., Geography, Geomatics, Geology, Urbanism, Forestry, etc.

The FA students formed 12 groups (teams of four to six students) and 3 individual students, in total 15 units. We specifically allowed FA students to work on the assignment individually to obtain voluntarily formed individual and groups – a crucial step to eliminate possibilities to procure unmotivated students (Reeve, 2013). All students got similar instructions during the lab work and tutorials, adjusted to their backgrounds, by the same mentor. All students also got detailed and precise instructions and three digitised, but not georeferenced, high resolution maps in scale 1 : 4,000. Thus, the participants studied the combination of information from the field surveys with the visual interpretation of the maps. The criterion for the evaluation of the submissions was equal for all FA and FIS students.

Table 2 summarizes general differences between FA and FIS students and the course of research for respective groups. We need to clarify the term 'submission time during exam period': it indicates that students had to submit their assignment during exam period.

Table 2: General information about FIS and FA students and the course of research
Preglednica 2: Splošne informacije o FIŠ in FF študentih in poteku raziskave

	FIS students	FA students
Average age (year) / range (year) / σ (year) / variance (year)	34.5/14/6.2/39	22.7/12/1.6/2.4
Student of relevant studies	NO	YES
Time for submission (days)	21	35
Submission time during exam period	YES	NO
Number of students per unit	1 (only individuals)	4–6 (+3 individuals)
Availability of attribute data	NO	YES
Exact field work location known	NO	YES
Option to geoprocess enclosed data	NO	YES

2.3 Background research information, course aims, objectives and learning outcomes

In April and May 2009, a field survey campaign for mapping *Robinia pseudoacacia* was conducted. All tracts containing any *R. pseudoacacia* were charted on a map and later also digitised. The expected positional accuracy of mapping was ±1 m. The second field campaign took place in September 2010. Repetitive nature of measuring the same phenomena, the same area by the same team members with identical surveying equipment, has induced the expected lack of motivation of the surveyors. Consequently, spatial data of a lesser quality was produced, which has (intentionally) provided us with a good background to examine students' understanding and interpretation of ISO 19157 data quality standards. Students were given a map of a mapped area of *R. pseudoacacia* (Figure 1). We need to point out that students participating in our research were not conducting the initial survey campaigns.

The study area is located in the lowland Pomurje region in the NE part of Slovenia, about 2 km south of Murska Sobota and 700 m away from a motorway A5, bordering a small Murska Sobota Airport. The observed area is limited to the following extent: 16°10'3" E, 46°37'33" N and 16°10'47" E, 46°37'47" N, resulting area size of 0.4 km^2. In the wooded areas, considerable tracts are overgrown with invasive species *Robinia pseudoacacia* (Repe, 2009; Somodi et al., 2012) (Figure 1).

We conducted our research as a part of a course module at the Faculty of Arts in Ljubljana and the Faculty of Information Studies in Novo mesto. Research related course aims, objectives and learning outcomes were:

Course aims:

- to give an introduction to ISO 19157 standard;
- to give a representation of the usage of ISO 19157 in the real world case, and
- to emphasize the shortcomings of the standard.

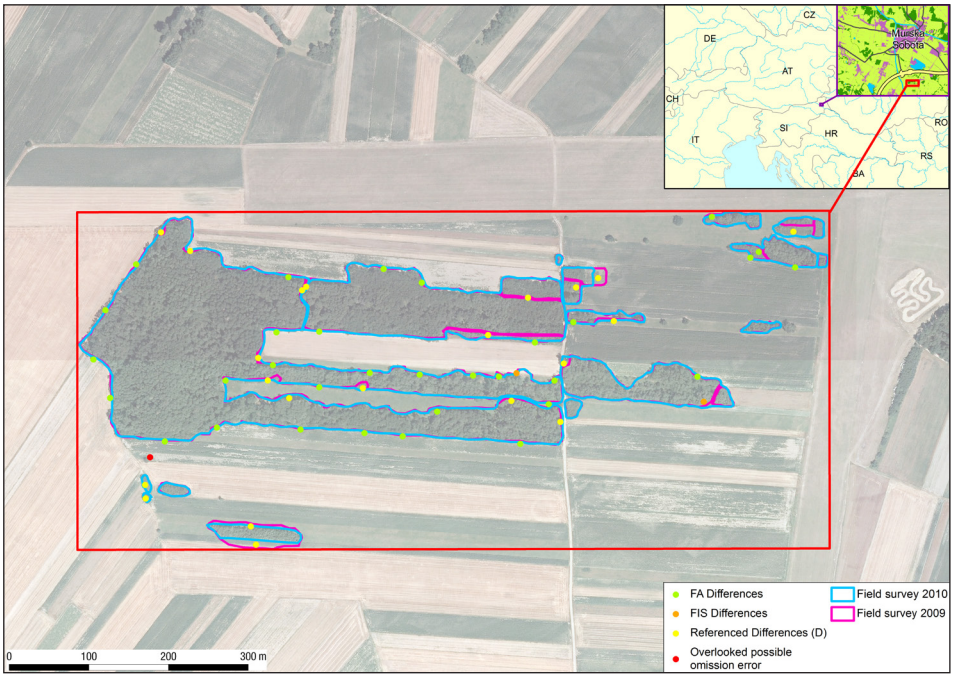
Objectives and learning outcomes. Students will be able to:

- categorise mapping errors based on ISO 19157;
- identify most common types of mapping errors;
- understand the importance of ISO 19157 for spotting and categorising mapping errors;

- use ISO 19157 to demonstrate common issues of the repetitive mapping;
- describe, explain and evaluate the source and cause of mapping errors.

The level of students' understanding and ability to apply their knowledge of ISO 19157 was assessed with an aid of six designated tasks.

Figure 1: Study area with digitised coverages: marked and referenced are differences between borders of areas of R. pseudoacacia in 2009 and 2010
Slika 1: Študijsko območje z digitaliziranima slojema: označene so referenčne razlike med mejami območij R. pseudoacacia leta 2009 in 2010



Sources/Viri: Fieldwork survey digitised coverage 2009 and 2010; Orthophotos, DOP050, 2010 (The Surveying and Mapping Authority of the Republic of Slovenia); OpenStreetMap contributors, 2015

2.3.1 Designated tasks for students

The first task of students' assignment was to identify all errors presented on a given map (Figure 1) that could be depicted in accordance to ISO 19157. Using a Logical consistency category (Table 1) as an example, students should identify all conceptual, domain, format and topological consistency errors. More precisely, students should identify 'at least' 11 conceptual consistency errors (e.g., attribute table column names for both layers of *Robinia pseudoacacia* should have identical naming, column data type ...), 4 domain and 4 format

consistency errors. Phrase 'at least' indicates that authoritative grading reference number is only a representation of the ground truth. As Leibovici, Pourabdollah and Jackson (2013) are succinctly pointing out that not even authoritative data is without errors, a grading reference number should be treated as a relative measure and not absolute measure of the ground truth. To successfully complete Task 1, students had to use quantitative description and classification of identified errors. To obtain full marks on this task, students had to identify more than 21 errors out of 29 referenced ones. We need to remark that due to various reasons not all basic categories (Completeness, Logical consistency, Usability element, Positional accuracy, Thematic accuracy and Temporal quality) were included in the grading reference. The number of referenced errors (grading reference number) in Task 1 (referenced *E*) was obtained by identification of only the following selected basic elements of ISO 19157 (Table 1): Thematic accuracy and Logical consistency.

The usability category was excluded as students were not aware of the purpose of the data provided. Neither FA nor FIS students were able to sufficiently interpret the usability category as they were not aware of the purposefulness of the gathered data. Their interpretation would be based on speculation and wild guessing, thus the usability category was excluded from the grading reference. Positional accuracy was absent from our grading reference due to our previous practical experiences with students' fixation on positional accuracy errors. Moreover, students were not given the information about the expected positional accuracy of mapping nor about the orthophotos' – even though the students could obtain the latter information from The Surveying and Mapping Authority of the Republic of Slovenia website. Temporal quality category was excluded due to the lack of temporal data in the attribute data, and completeness category due to inclusion of this category in the grading reference of Task 6. To avoid unnecessary redundancy in data, we took Completeness category into consideration only for designated Task 6.

The FA students obtained additional geolocated data (spatial and attribute data) of the mapped *R. pseudoaccacia*, and not only plain non-georeferenced data in TIFF and PDF files as FIS students had. Therefore, FIS students could not fully complete Task 1, only FA students could. FIS students could only use Completeness and Positional accuracy category of ISO 19157 for interpretation and were therefore exempt from fully completing the Task 1.

The purpose of the second task (Task 2) was to evaluate students' ability to answer an open-ended question while conforming to the structure of ISO 19157. Student task was to interpret one error identified in Task 1 according to ISO 19157. The interpretation of the error should be categorised using all basic categories (more information in Table 1). Grading reference number for this task was 6 points (1 point for each basic category), setting grading criteria of 6 points for full marks.

In Task 3 students had to describe all identified errors in Task 1 in conformance to the required form specified under section 8.5 of ISO 19157 (ISO/FDIS, 2013). The required form is composed of a list of components and includes in total 12 elements. Grading reference number for this task was 6 points, setting the limit at 5.5 points and above for full marks. In this task, students had to display ability to follow rigid structure of ISO standard and had to understand and use more in-depth classification of ISO 19157.

Students had to specify potential errors not included and defined in ISO 19157 and identify them on the map, if applicable. Task 4 required students to do the extra study on the selected case using strong analytical skills. Grading reference number for this task was at least 13, having grading criteria for full marks at 7 points and above. The reason for the very low grading criteria to obtain full marks lies in relatively high complexity of the task.

Task 5 was the most difficult task for students to accomplish. Students were required to use synthesis and evaluation in order to define, evaluate and explain the cause of errors. Deeper understanding of the problem was crucial to successfully complete this task. This task was the only task where grading reference number was left undefined. The reason for this decision was due to very high complexity of the task. Grading criteria to obtain full marks was set at 7 points.

Task 6 was the only task where only visual assessment could be used to successfully accomplish it. Students had to mark (with an aid of graphical or/and GIS program) identified differences (D) between polygons representing borders of *R. pseudoacacia* area between the years 2009 and 2010. Students obtained full marks for at least 22 identified differences. In grading reference number, 23 differences were included, marked and displayed in Figure 1.

Using Bloom's taxonomy (Anderson, Krathwohl, 2001) regarding obtained skills in the cognitive domain, students need to apply knowledge in Tasks 1, 5 and 6 (obtained skill knowledge), comprehend (comprehension) ISO 19157 in Task 2, apply their knowledge in Task 3 (application), classify in Task 4 (analysis), explain and define the cause of errors in Task 5 (synthesis and evaluation). Therefore, the six tasks were designed to encompass the whole scope of ISO 19157:

- tasks for which critical assessment is not needed (1, 2 and 6), and where only basic classification interpretation is required, and
- tasks for which critical assessment and deeper understanding of classification is crucial (Tasks 3, 4 and 5), coupled with the ability to make autonomous decisions on top of creative thinking.

With designated tasks we strove to set geomedia platform as a central environment of student's work and (in case of FA students) to furthermore incorporate collaborative work principles throughout research and during student assessment. Tasks 1, 4, 5 and 6 were specifically designed to consider collaborative work of students in the grading reference. As our main objective was to assess the impact of collaborative learning on the student performance, only the results of four tasks (Tasks 1, 4, 5 and 6) were included in our further research.

Student interpretation of datasets quality was twofold. Visual assessment of datasets quality was aided with geomedia tools (*ArcMap* with geoprocessing tools, map and metadata), while attribute inspection of datasets quality was executed in a form of *SQL* queries and (probably) visual comparison of both attribute tables. Visual and non-visual assessment of datasets in groups was the result of collaborative work (supported with just-in-time instructions).

2.4 Datasets considered as ground truth

The 'ground truth' data are referenced data used for quality control. The first set of referenced data are previously available reference datasets obtained as GIS coverages. The GNSS configuration was utilised with the support of digital orthophotos (Orthophoto, 2010) with resolution of 0.5 m and topographic base maps in scale 1 : 5,000 (Temeljni topografski …, 2006) and 1 : 25,000 (Državna topografska …, 1997). Obtained *R. pseudoacacia* areas were supplemented with the visual interpretation of the digital orthophotos taken during the flowering of the species in 2005 (Somodi et al., 2012).

The second set of referenced data considered as ground truth is authoritative reference of an experienced professional (teacher). We graded students' work based on grading reference.

The third, innovative set of referenced data considered as ground truth are excellent authoritative grades to students from an experienced professional (teacher) who assessed their work. Grading reference numbers represent the ground truth since they are a derivation of all marked deviations of both datasets (polygons representing borders of *R. pseudoacacia* area from years 2009 and 2010) and signify divergence from the ground truth. Therefore low students' score (low percentage) is an indicator of the poor student's performance in perception and assessment of the 'derived ground truth'.

3 METHODS FOR ASSESSMENT OF STUDENTS' LEARNING PERFORMANCE

Instead of using transmission instruction model to delegate assignment to the students, we opted to use a flipped learning approach. The choice of this approach was possible due to heavily integrated information and communications technology (ICT) in the learning process. Strong integration of ICT is possible due to relatively low costs of software and hardware, thus the use of geomedia is accessible to the less destitute individuals (Long, Siemens, 2011). Research was conducted with a variant of flipped learning settings, with one major distinction from a classical flipped learning, i.e., the order of the execution of exercises. A typical flipped learning class incorporates active-learning exercises (e.g., small group discussions, case study, scenarios …) during in-class time (Roach, 2014; O'Flaherty, Phillips, 2015), while we moved active-learning exercises onto web collaborative platform.

Our in-class group discussion and case study presentations were moved to online collaborative document (*Google Docs*) and/or messaging replies on students' questions via message board to provide just-in-time instruction. Just-in-time instructions were delivered only for a specific time period. Face to face class time was used, with our role as mentor and facilitator, to clarify necessary concepts and usage of certain GIS tools. We additionally recorded a set of videos with comments for the given tasks. Moreover, formed teams were also encouraged to hold small group discussions (basically a brainstorming). Even though there was no direct control over group discussions (Roach, 2014), students could (and they had) received online guidance via collaborative document, or for more team specific questions, via message board.

The implementation of the experimental design is based on a concept – assessment procedure framework coupled with the introduction of the core terminology and description of the assessment procedures, i.e. methods that are important in this study: elements of data quality and tools for quality control used in the learning environment. We foremost assessed the impact of collaborative learning and the usage of interactive geomedia tools in the flipped learning settings. This is the most important, analytical part of this study. A framework of assessment procedures is presented in Table 3.

Table 3: A framework of assessment procedures
Preglednica 3: Ogrodje za postopke ocenjevanja

<table>
<tr><td>Assessment of students</td><td colspan="2"></td></tr>
<tr><td rowspan="2">Synergy assessment concerning student's quality assessment results in order to test a collaborative learning</td><td colspan="2">No association (individual learning)</td></tr>
<tr><td colspan="2">Group association (collaborative learning)</td></tr>
<tr><td>Grading reference system</td><td colspan="2"></td></tr>
<tr><td colspan="3">Quality assessment of the students' results with comparison and classification concerning students' learning performance</td></tr>
<tr><td rowspan="4">Individual and cluster level analysis (relative measures)</td><td colspan="2">Individual students level analyses</td></tr>
<tr><td colspan="2">FA versus FIS students comparison (each group or individual student is treated as a separate entity)</td></tr>
<tr><td colspan="2">Clusters of students level analyses</td></tr>
<tr><td>FA versus FIS students (FA and FIS students are treated as two distinctive entities)</td><td>All individuals (FA and FIS) versus all groups (FA) – individuals and groups are treated as separate entities and FA individuals versus FA groups</td></tr>
<tr><td colspan="3">Students' results versus authoritative 'true ground' (absolute measure)</td></tr>
</table>

3.1 Tools for quality control

We describe all used tools to ensure the quality control of obtained data and results:

- tools used by students (didactics purposes), and
- tools for student's learning performance assessment (didactics purposes).

3.1.1 Tools used by students

Several tools/techniques to assess datasets quality and for quality control were available for the students. First, their adherence to ISO 19157 was the most important quality control of provided datasets. FA students had, for visual assessment tasks, the following geomedia tools at their disposal: possibility to zoom in/zoom out, to change colours and thickness of polygon borders, to use the geoprocessing tools and to exchange ideas, findings and even collaboratively share knowledge (via *Google Docs*). Individual students and groups also used *ArcGIS Map* package tool, however only groups could utilise

ArcGIS Map package to collaboratively share and distribute the whole work process among peers. Groups could use aforementioned tool to complete individually Tasks 1 and 6, and then, as a part of flipped learning process, perform peer review or small group discussions and (if applicable) brainstorming sessions. FA students also had several tools for non-visual tasks at their disposal: *SQL* joins, examination of metadata and even possibility to take another fieldwork survey.

3.1.2 Tools for student's learning performance assessment

For student's quality assessment specific tools or methods were used to:

- analyse the quality of obtained data according to ISO 19157 (see Section 3.1.3),
- determine grading reference (see Section 3.1.4), and
- to evaluate synergy assessment and characteristics of students (see Section 3.1.5).

3.1.3 Analysing quality of obtained data according to ISO 19157

Quality of field survey results in 2009 and 2010 versus ground truth – tasks 1 to 5: To determine grading reference (necessary to obtain ground truth for student's assessment), the following tools, techniques and standards were used:

- Task 1: predefined *SQL* queries (for attribute data) and *ArcGIS* geoprocessing tools (for geometry data);
- Task 4: a compiled list of 13 referenced errors (grading reference number) based on our previously related experiences and additionally cross-referenced with mainly Leibovici, Pourabdollah, Jackson (2013);
- Task 5: as a base reference Veregin (2005).

The quality of field survey results in 2009 versus in 2010 (relative quality) – task 6: Completeness category of ISO 19157 was accounted only in Task 6 (but not in Task 1). The reason for this was our request to design and incorporate only visual assessment of completeness component defined in ISO 19157, more specifically to identify commission and omission data quality elements. According to ISO 19157 (ISO/FDIS, 2013), an omission error (element of Completeness category) defines the absence of data from a dataset (e.g., tract of *R. pseudoacacia* area from the year 2010). Our data of the borders of *R. pseudoacacia* areas were visually assessed by students. Students could find potential or possible omitted tracks of *R. pseudoacacia* located in the orthophotos, which were overlooked during surveying campaigns. We differentiated between (possible) omission errors that students and experts found and between omission errors only students identified. The latter omission errors were labelled as overlooked possible omission errors.

3.1.4 Determination of grading reference

Due to limited scope of the paper, we are going to analyse only the results obtained from Tasks 1 and 6, and descriptive statistics of grade results. As already mentioned, the

Task 1 was not fully feasible for FIS students. Tasks 4, 5 and (partially) 3 were more demanding tasks to accomplish. To mitigate the social facilitation effect (Anderson-Hanley et al., 2011), simpler tasks were more appropriate to assess the influence of cluster level (for FIS – combined work of all individuals; for FA – combined work of all individuals versus groups) on the overall score and to examine individual students (I_s) versus groups (G) performance (for more see section 4.2.1). Based on our assessment of all given tasks, the most appropriate tasks for evaluation were Tasks 2 and 6. We ruled out Task 2 as the main focus of our research was to assess the impact of collaborative learning on students' performance, which could not be deciphered from the results of Task 2. The reason for this was absolute measurement of grading criteria (it was not possible to score more than 100% against the grading reference – for more see section 4.1.2). Task 6 also had a slight advantage over Task 2, mostly due to the simplicity to depict results with the use of geomedia. Thus Task 6 was the only task in which only visual assessment (and coincidently also only with geomedia) could be used to successfully complete it.

For Task 6 the students' assignment was to identify, based on visual assessment of a given map (Figure 1), and mark all positional differences of *R. pseudoacacia* borders from years 2009 and 2010. Due to visual assessment restrictions, certain non-visual methods were used (queries, algebra, metric and geometric) to select valid positional differences.

To be able to fully distinguish non-overlapping borders between two objects at map scale 1 : 4,000, an object size should have at least 1 mm of length/width and resulting area size of 4 m^2 (Goodsell, 1997). We do need to underline that despite clear instructions not to change map scale of the maps, students were able to change manually the zoom level in graphics software (e.g., *GIMP*, *IrfanView*, etc.) or zoom level/map scale in GIS software (*ArcGIS for Desktop* or *QGIS*).

Students' work for Tasks 1 and 6 was evaluated based on grading reference of specific set of variables used in these two tasks. Those variables were:

- Identified differences (*D,* shortly differences) – Task 6;
- contains only Completeness category;
- Identified errors (*E*, shortly errors) – Task 1 is composed of;
- Logical consistency errors, and
- Thematic accuracy errors.

The differences could be, according to ISO 19157, one of the following elements: Commission/Omission, Topological consistency, Absolute or External accuracy or Relative or Internal accuracy and also those accounted under Task 1. However, we separately examined Task 6 where visual assessment could exclusively be used to complete the task, from all other tasks.

Several identified differences (*D*) were obtained by students with an aid of visual assessment of the provided map. The students' task (Task 6) was to compare visually any geometric differences between the borders of *R. pseudoacacia* area in the years 2009 and 2010, and to mark them onto the provided map. Methods to ascertain grading reference (23 referenced differences) are based on visual assessment.

3.1.5 Evaluation of synergy assessment and characteristics of students

The number of referenced errors (referenced *E*) was directly derived from compliance to ISO 19157. Grading reference was obtained by identification of all errors introduced in the selected classified elements of ISO 19157 (Table 1). We selected only basic elements for our analyses: Thematic accuracy and Logical consistency due to various (already specified) reasons. Errors in Topological consistency, an element of Logical consistency category, were counted per number of different types of errors and not per occurrence (e.g., identified 10 slivers were counted as one error).

To descry contribution of each individual or group within the population of FA or FIS students (at least) the following measurements were available for use:

- counting the number of all contributions made by a specific individual or group;
- comparing the full number of contributions per individual or group with an average number of contributions;
- measuring man-hours of all contributions per individual or group;
- counting the number of unique contributions per individual or group.

To obtain the number of unique contributions, we need to identify unique differences (*UD*) derived from Task 6 or unique errors (*UE*) originated from Task 1. The variables unique differences (*UD*) and unique errors (*UE*) were derived from variables differences (*D*) and errors (*E*). The terms unique difference of FA (UD_{FA}) and unique difference of FIS (UD_{FIS}) are used to describe unequalled contributions of each individual/group within a population of FA and FIS students (Equations 1 and 2).

To obtain the number of unique contributions between the outcomes of each individual/group against the rest of the population the following equations were used:

$$UD_{FA} = a_1 \ominus a_2 \ominus a_3 ... \ominus a_{15} \quad (1)$$

$$UD_{FIS} = b_1 \ominus b_2 \ominus b_3 \ominus b_4 \quad (2)$$

and

$$UD = UD_{FA} \ominus UD_{FIS} \quad (3)$$

where *UD* is unique identified differences (*D*) between all individuals/groups FA ($a_{1 \ldots 15}$) and FIS ($b_{1 \ldots 4}$) individuals.

Unique differences were measured against FA (UD_{FA}) and FIS (UD_{FIS}) students separately, which means that one cannot simply do a summation of *UD* ($UD_{FA} + UD_{FIS}$) of all units to obtain the total number of unique differences produced by the whole population (Equation 3).

The set of chosen variables used in the analyses was labelled as demographic/sociographic variables. The purpose of these variables was to delineate potential differences of students' performance based on different characteristics of students. These variables are:

- difference in years between the age of students (AgeUnitRange);
- simple arithmetic mean of the group age (AverageUnitAge);
- group gender (male, female and mixed), and
- individual student (I_s) and a group (G).

4 RESULTS

The results of this study answer to the objectives with considering assessment procedures methodology and methods in Section 3.

4.1 Assessment of students

4.1.1 Synergy assessment

Synergy assessment concerning student's learning performance was used in order to test collaborative learning. We considered two types of association between students:

- no association – it indicates individual work/learning where an assignment is carried out by an individual student (I_s), and
- group association – it signifies group (collaborative) work/learning where an assignment is performed by a group of students (G – composed of 4 to 6 students).

We distinguished individuals versus groups to examine unexplained difference between results of I_s and G, which could be a consequence of possible synergy effect indicated in the groups. Our research included 7 individual students (I_s) and 12 groups (G). The analyses performed on individual level considered each individual/group as a separate entity (e.g., a group or individual contributed 10 identified differences irrespective of the possible identical contributions of other groups/individuals). With the individual level type of analyses we could answer the following questions:

- average score on particular tasks for G or I_s;
- minimum score of specific task obtained by G or I_s.

With a cluster level type of analyses we could get additional information not obtainable by individual level type of analyses:

- the number of (unique) features identified by individual students (I_s) or/and by groups (G);
- the number of unique contributions made by individual students (I_s) or/and by groups (G).

Analyses performed on a cluster level treated I_s and G as separate entities while the upmost level of observation (whole observed population) as a single entity. The purpose of individual and cluster level analyses is to make a clear distinction between individual performance and group performance, and also in the case of cluster level analyses, to obtain information about (unique) contributions of the groups/individuals.

4.1.2 Grading reference system

To measure, compare and evaluate student performance, an appropriate grading reference system was used. In this study, a grading criterion was also established to evaluate how close the students were to the ground truth. We need to point out (Leibovici, Pourabdollah, Jackson, 2013) that not even the authoritative data (acquired and processed by professionals) is without errors. Consequently, the grading reference numbers should be treated as a relative measure of the ground truth. In other words, grading reference number could be exceeded by students, e.g., a student could achieve more than 100% per specific task. The perceived authoritative ground truth was the reference for the relative grading criteria. We need to emphasise that grading criteria for tasks 1, 4, 5 and 6 are relative and not absolute measurement. Grading reference defined for all tasks had a referenced number which served as a measurement of students' successfulness.

Student's performance was evaluated using norm-referenced grading (Nilson, 2010), as the main purpose of grading was to assess how well the students comprehended and interpreted ISO 19157. The grading criteria varied between the tasks and were based on a couple of factors:

- on the level of task difficulty (Task 5 – to obtain at least positive grading mark (6) in this task, where deeper understanding was needed, only two defined (out of at least 7) and explained causes of errors were needed);
- the number of all elements to be identified or marked by students (larger grading reference number also resulted in higher thresholds of the grading marks for grade 6 and above);
- the rate between the shares of identified elements against the number of referenced elements (e.g., Task 1 had 29 grading reference points and Task 6 had 23 grading reference points. Task 1 was marked as failed (mark below 6) if less than 9 errors were found, while Task 6 had a criterion set for less than 6 identified differences.

All students' performance was evaluated in percentage. The gained percentage was calculated as a fraction of gained points divided by the grading reference number and multiplied by 100 (identified or marked elements against a grading reference), e.g., in Task 1 the grading reference number was 29 points. The average score of 76% at this task of the particular group/individual would mean that this group/individual achieved 22 points at Task 1.

It was necessary to use a more holistic approach in evaluation of the students' understanding of ISO 19157. The main purpose of such design was to ascertain suitability of a specific task for individual and/or group settings, based on the difficulty of the task. The other aim was to establish whether any type of association has advantage over the other, for tasks where only recognition (of patterns, symbols, shape, format, etc.) and learned facts are sufficient, and tasks where (deeper) understanding of learning material is needed to complete successfully the designated task. The last aim was to cover the full scope of Bloom's taxonomy, from using knowledge skills to analysis, synthesis and evaluation of divergences (in accordance to ISO 19157) from the ground truth.

The designed tasks were aimed to put students of relevant studies (geography, geology, geodesy…) at vantage over students of non-relevant studies. To exhibit successfully the understanding of ISO 19157, an integrated knowledge of physical geography, topography, geoinformatics, GIS (software and geoprocessing tools) on top of visual assessment and understanding of data quality was required. However, we need to point out that FA students were basically the beginners, only in their second semester of the second year of study. Despite this fact, we were expecting that FA students would have greater advantage over FIS students and consequently perform better than FIS students. Our expectation was based on the fact that students in their second year should have far better developed 'spatial way of thinking' (Kolvoord, Uttal, Meadow, 2011) than the average student of non-relevant studies.

We conducted only descriptive statistics to obtain necessary data for further analyses. The purpose of individual level analyses was to gather general characteristics of FA and FIS students' performance. The results are delineated into groups based on grade results and general characteristics. Additional information is displayed in Figure 2:

General characteristics:

- the average score of all tasks combined was 78% for FIS students (identified or marked elements against the grading reference), while FA students gained only 29%;
- FIS students scored on average more than 62% at each task, while FA students scored on average at least 17%;
- FIS students achieved on average 88% of the total possible score for two tasks, whereas FA achieved a maximum of 40%.

According to the above presented results, we need to emphasise that the maximum achieved score for FA students of 40% was less than the minimum achieved score (62%) for FIS students.

Best graded tasks:

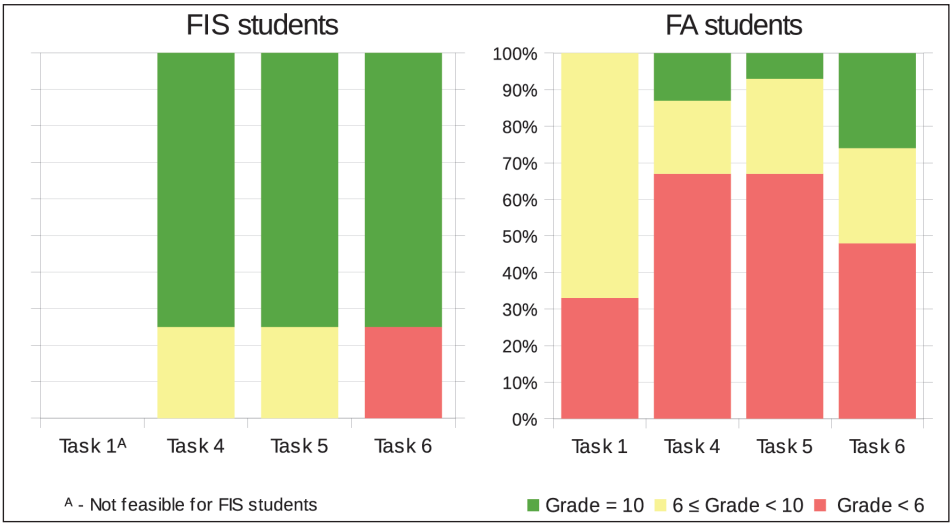
- FIS students: Tasks 4 and 5;
- FA students: Task 6.

Worst graded tasks:

- FIS students: Task 6;
- FA students: Tasks 4 and 5.

Despite the number of referenced differences (23), the FA students could, with appropriate use of geoprocessing tools, successfully identify all 451 differences. We need to emphasize that initially students had no prior knowledge about geoprocessing to use all necessary tools to efficiently complete a given task. However, students could, with the aid of Google docs, course lectures and practicals and recorded videos, gain enough knowledge to identify successfully all 451 differences.

Figure 2: Percentage of grading scores per task
Slika 2: Rezultati ocenjevanja glede na delež po nalogah



4.2 Quality assessment of the students' results with comparison and classification concerning students' learning performance

4.2.1 Individual and cluster level analysis

The main objective of these analyses was to assess whether there is a statistically significant difference between the results of individuals and groups. With these analyses we obtained results necessary to carry out the next comparison (*Students' results versus authoritative 'true ground'*). Unfortunately, due to a small sample size (N=19), the diversity between FIS and FA students (see Section 2.2 and Table 2), we cannot make firm conclusions about statistically significant differences between individuals and groups.

4.2.1.1 Individual students level analyses

This set of analyses is already included in the section 4.1.2 (Grading reference system) as it pertains only to grades.

4.2.1.2 Clusters of students level analyses

To confirm possible synergy effect (the consequence of collaborative work) indicated in groups, we conducted three additional sets of analyses (relative measures).

4.2.1.2.1 FA versus FIS students (FA and FIS students are treated as two distinctive entities)

In Task 6, FIS students identified on average 12.5 *D* (differences), while FA students only 7.3 *D*. With the use of an independent t-test we determined that there is a statistically significant difference ($t(17) = 2.16$, $p = 0.046$) between FIS and FA for aforementioned variable *D*. To analyse possible synergy effect of the collaborative work, the most suitable task for further analyses was selected.

We scrutinised Task 6 and estimated that FIS students could on a cluster level identify altogether 20 ± 2 differences (*D*) (≈ 88% of the referenced score – 23 *D*), whereas FA students 9 ± 1 differences (*D*). Our estimation was based on the achieved highest average score per task for FA (40%) and for FIS (88%) students.

Comparing results of Task 6 between both groups revealed the following findings:

- FIS students achieved the estimated result of 21 identified differences (*D*) out of 23 referenced *D*;
- FIS students also found 2 potential omission errors;
- FA students greatly exceeded our expectations with 55 *D* on top of 8 omission errors.

Therefore, FA students observed 34 more *D* than FIS students, and additionally found six potential omission errors more than FIS students.

Our results are accentuating significant difference of variable *D* between FA and FIS students, which is in diametrical opposition to our previous ascertainment. To ascertain the source of this contradiction, a dichotomy of summed variable *D* is needed. Consequently a variable *UD* was used to do a throughout comparison, quality assessment and classification of observed differences.

Based on the outcome of Equations 1 and 2 (Section 3.1.5), the following results can be derived:

- on average a group of FA students identified 2.67 unique differences (UD_{FA});
- a group of FIS students identified on average 1.25 UD_{FIS}.

The presented results indicate the origin of enormous deviation between the observed and expected results of FA students. Significant deviation between the results could be contributed to the potential synergy effect of the collaborative work.

4.2.1.2.2 All individuals (FA and FIS) versus all groups (FA) and FA individuals versus FA groups

The comparison of results of individuals versus groups versus whole population (relative measure) was crucial to uncover how many contributions were made by individuals, groups and how many by all of them combined. Our aim was to display the relationship between unique contributions (unique differences *UD* and unique errors *UE*) of individuals versus unique contributions of groups versus unique contributions of the whole population.

The comparison between I_s (individual students) and G (group) is obvious and the logical choice to use for discovering any differences derived from different types of association. What needs to be assessed is whether there is any statistically significant difference between I_s and G for variables *UD*, *UE* and/or *D*, *E*. Nonetheless, we need to underline once again that, for any solid statistical analyses, we had a sample size too small (N = 19) to make any firm conclusions about statistically significant differences.

Since variables differences (*D*) and unique differences (*UD*) were determined by students with an aid of simple visual assessment, we extended our study with further analyses of variables errors (*E*) and unique errors (*UE*). As there were more data collected for FA students (logical consistency error, thematic accuracy errors, errors (*E*) and unique errors (*UE*) than for FIS students, we excluded FIS students from analyses based on variable *E*. The outcome of descriptive statistics and independent t-test gave us the following results:

- even though there are differences between means of *D* for I_s (11) and *G* (7), they are not statistically significant ($t(17)=1.85$, $p = 0.08$);
- the independent t-test showed no statistically significant difference for the variable *UD* between I_s FA and FIS (FIS (0.5 ± 0.35), FA (0.67 ± 0.38), $t(5) = -0.10$, $p = 0.92$);
- there is a statistically significant difference ($t(17) = 2.4$, $p = 0.03$) between I_s and *G* for the variable *UD*;
- there is a statistically significant difference between I_s FA and *G* FA students for the variable *UE* ($t(13) = 3.75$, $p = 0.00$) and *UD* ($t(9.3) = 2.23$, $p = 0.05$);
- although variables *D* and *E* are different between I_s FA and *G* FA students, they are not statistically significant ($p = 0.53$ and 0.11 respectively).

The last set of analyses tried to confirm the notion that our previous findings can be extended from 'visual' orientated tasks to the 'non-visual' tasks as well.

Despite all analyses we have performed so far, we still cannot answer one simple question: how many contributions in total would be made by individual students (I_s), how many by groups (*G*) and how many by all of them combined. To answer this question we need to make four syntheses – the first synthesis for I_s, *G* and variables *D* and *UD*; the second synthesis for I_s (FA students only), *G* and additionally variables *UE*, thematic accuracy errors, logical consistency errors; the third synthesis per groups and individuals and variables *D* and *UD*, and the fourth synthesis per FA groups and individuals and variables *D*, *UD*, *UE*, thematic accuracy errors and logical consistency errors. These four syntheses are essential to distinguish the source of the main contributions (based on the type of association) for visual and non-visual tasks (Figure 3).

Figure 3: Overall contributed data by individuals and groups
Slika 3: Skupni prispevani podatki po posameznikih in skupinah

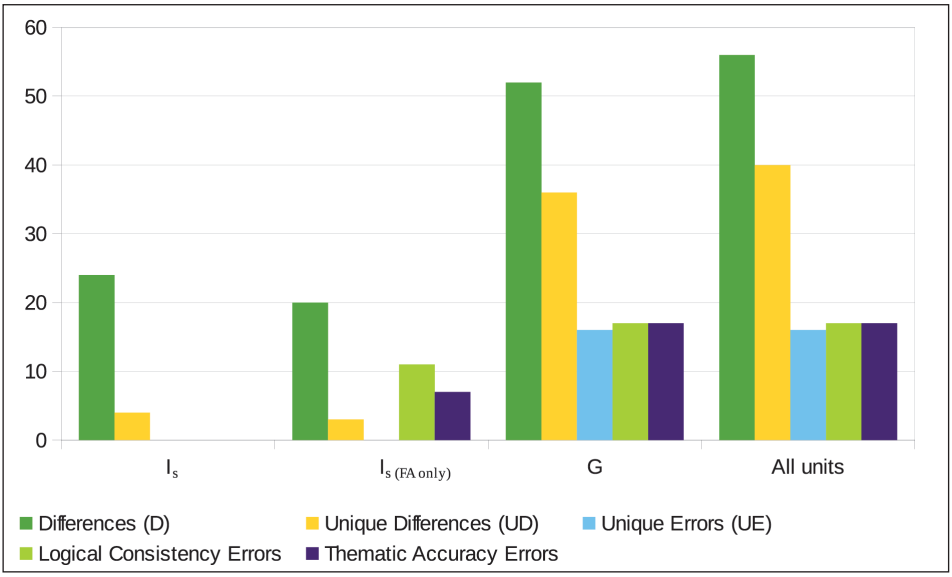


Figure 3 is clearly displaying a very large disproportion of variables *UD* and *UE* between groups (*G*) and individual students (I_s). Individual students contributed in total only 4 unique differences and did not contribute identified unique errors at all. On the other hand, groups contributed 36 unique differences and 16 unique errors. In other words, *G* contributed in total 93% of all unique contributions, whereas I_s only 7%.

The purpose of this comparison was to confirm/reject our notion that unit type (groups or individuals) is, due to collaborative synergy effect, highly correlated to the students' performance and is the major cause of statistically significant differences between unique contributions (*UD* and *UE*) of individual students and groups. Variable unique difference is a novel approach of attempted measurement of synergy effect of the collaborative work for visual assessment tasks whereas variable unique errors for 'non-visual' tasks.

4.2.2 Students' results versus authoritative 'true ground'

We conducted a comparison of students' results (performance) versus the authoritative and absolute measure ('true ground') to discover how close to the ground truth were the students. We took into account the whole population, using the results of Tasks 1 and 6. The grading reference was considered as the ground truth, however it was not considered as the absolute ground truth. Moreover, the students could identify more differences (*D* – Task 6) and errors (*E* – Task 1) than the grading reference number for a particular task was. We need to stress that not all deviations from the grading reference ground truth

were accepted as valid. All deviations were carefully examined and additionally tested for invalidity with the aid of geoprocessing tools.

FIS students did not exceeded more than 100% of the grading reference at the analysed task (Task 6). Furthermore, they did not identify any non-referenced element (commission or omission error). They reached 91% of the grading reference number (21 out of 23) overall.

Before we carry on, we need to emphasize that the measuring performance of a single FA group against the grading reference has in general displayed poor results of groups. However, the population of FA students was, in comparison to their FIS counterparts, much more successful in identifying differences/errors and identified in total:

- 34 errors (Task 1 had 29 referenced errors);
- 18 out of 29 referenced *E* (18 non-repetitive (unique) errors);
- 16 non-referenced identified errors (out of 34);
- 55 differences out of 23 referenced differences.

We also need to mention that FA students additionally found one possible omission error that we overlooked (overlooked possible omission error).

The most important finding is that FIS students (individuals) contributed not even one unique contribution as all unique contributions were made by FA groups. The findings were derived by using Equation 3.

Based on the presented results, we can assess with a comfortable certainty that there are significant differences in group means between both associations (FA versus FIS and individual students (I_s) versus groups (G)). We can also ascertain that the main contributions were, on the level of the whole population, made by groups, which very well accentuates our notion of the synergy effect of the collaborative work.

5 DISCUSSION

5.1 Unique contributions as a novel approach

As all initial analyses and comparisons indicated better or even superior results for individual students (I_s) against groups (G), it was very hard to explain successfully the unexpected results of the overall identified differences (Task 6 – marking differences based on visual assessment). Our inability to explain successfully the difference urged us to approach the problem from a different perspective.

We decided to include a novel approach of indicating unique contributions to decipher the origin of this discrepancy. Our analyses indicate that there is no statistically significant difference for identified differences (D) and identified errors (E) (Tasks 1 and 6) between I_s and G. Nonetheless, there is a statistically significant difference for variables unique differences (UD) and unique errors (UE). Groups (G) account for more unique errors and unique differences than individual students (I_s), which encompasses our findings that groups excel in registration of marginal phenomena in comparison to individuals very well.

We need to point out that our initial research counted unique contributions (unique differences and unique errors) for FIS and FA students separately. Our findings urged us to measure unique errors (*UE*) and unique differences (*UD*) on the level of the whole population (FA and FIS students). Thus measuring unique contributions gave us even more pronounced differences between individuals (I_s) and groups (G). The contribution made by individuals to the number of all identified differences was minuscule in comparison to the contribution of groups. Only 4 contributions out of 56 were made by individual students. Furthermore, individual students did not contribute a single identified error (E) as all identified errors (thematic accuracy errors and logical consistency errors) made by individuals were also identified by groups, while groups contributed 16 uniquely identified errors. At first glance it makes no sense to integrate individual students' work if the same task is carried out by groups as well. We will later explain this fact, for now we can claim that in the case of mixed I_s and G settings, the inclusion of individuals' contributions makes a perfectly valid stance and individual students should not be excluded during data integration process.

5.2 Usage of geomedia

According to Ainsworth and Loizou (2003), the usage of geomedia should establish a more efficient learning environment, however the level of efficiency is dependent on the type of task and student's learning style. We furthermore expected that FA students as millennial generation, for which the learning activities are expected to be interactive and immediate (O'Flaherty, Phillips, 2015), to have significant advantage in performance over FIS students.

Even though FA students were not trained in particular geoprocessing tools (Symmetrical difference, Explode multipart feature, Minimum bounding geometry, Feature vertices to points) necessary to identify all 451 spatial differences between the two layers of *Robinia pseudoacacia,* they were trained in other geoprocessing tools (Union, Intersection, etc.) and GIS software (*QGIS*, *ArcGIS for Desktop*). We expected that the knowledge of GIS tools, GIS software and training in understanding, visualising and dissecting geospatial processes will give them the distinct advantage over FIS students, especially as FA should have already developed 'spatial thinking' (Kolvoord, Uttal, Meadow, 2011; Sinton et al., 2013).

The usage of interactive geomedia tools has no direct influence on the improved perception and memorising of information and consequently on better student performance. We can conclude, on the basis of comparison between individuals of FA and FIS, that the usage of geomedia tools was only beneficial in the identification of less noticeable differences (*D*: Task 6 – finding differences based on visual assessment) but not on the overall performance. However, the obtained results underline the fact that students' collaborative work was the deciding factor in the better students' performance.

6 CONCLUSIONS

In the paper, flipped learning with geomedia was studied through practical tasks for students. The students practiced their abilities in collaborative and individual learning,

research work and holistic approach to the studied problem. The proposed concept was tested for two different groups of students at the Faculty of Arts of the University of Ljubljana and the Faculty of Information Studies in Novo mesto, both in Slovenia. For their study, the students used two datasets (vector coverages) of the same phenomenon, *Robinia pseudoacacia*, mapped in two successive years with the same team members and equipment. This was a special challenge for students who needed to assess the quality of the mapping according to ISO 19157 Geographic information – Data quality standard. On the other hand, the results of individuals and groups of students were a challenge for the researcher to propose a concept for assessing and grading their learning outcome. Nevertheless, the interactive just-in-time instructions were provided by the teacher through the flipped learning process.

Through several different comprehensive analyses using statistical and GIS software, the following significant findings need to be exposed:

(1) Better background in geography, better spatial perception (as students are trained in spatial thinking) and even additional option of usage geoprocessing tools has not proven to be an advantage for students' comprehension with the exemption of identifying some minor details. The students learned about the standards for spatial data quality through identification and classification of errors, and creative thinking to understand the nature of spatial data concerning reality.

(2) The individuals were on average considerably better than groups of students for all types of tasks, especially in tasks which required the use of critical judgment, deeper understanding of the problem and creative thinking. The groups were in general more successful, but still less than the individuals, with tasks that did not require the use of critical judgment. Concerning 'derived ground truth' based on grading, the individuals were practically not contributing to its definition. Here, the groups were considerably more successful. The groups were also much more successful in finding unique differences, where synergy effect of the collaborative work was an important factor. The analysis of demographic data showed no significant differences according to age, age range or gender, except for the type of association (individuals or groups), which proved to be the main reason for the difference in performance among students.

This study opens several questions in didactics (of geography), such as how to practically optimize deeper, but holistic knowledge and understanding of the studied content to improve learning outcomes. Since methods of teaching are much interdependent with learning strategies of the students, it is necessary to obtain valuable delivering learning material and information presentation, comprehensive feedback and assessment (grading) of knowledge. We plan to implement adapted framework proposed in this paper on the level of high and primary schools. The proposed framework is also suitable to use in game based learning, where students can learn specific subjects through experiments.

(Translated by the authors)

Acknowledgment

Part of this study was supported by the Water Science and Technology, and Geotechnics Program [P2-0180] of the Slovenian Research Agency (ARRS). The background of the study was formed as a part of TransEcoNet (Transnational Ecological Networks) project, Central Europe Programme, co-financed by the European Regional Development Fund (ERDF) led by Prof. Elmar Csaplovics and coordinated by Tomaž Podobnikar as Project partner.

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SODELOVALNI IN INDIVIDUALNI PRISTOP PRI OBRNJENEM UČENJU Z OCENJEVANJEM ŠTUDENTOV NA PODLAGI KONTROLE PROSTORSKIH PODATKOV

Povzetek

Z vpeljavo digitalnih tehnologij v proces izobraževanja so se pojavile zahteve za vzpostavitev novih tehnik poučevanja, ki bi bolje izkoristile razpoložljivo tehnologijo kot ga izkorišča tradicionalni transmisijski pedagoški pristop. Ena izmed primernih razpoložljivih tehnik je pristop obrnjenega učenja, ki temelji na uporabi digitalnih (predvsem spletnih) tehnologij.

Osnovni namen prispevka je razviti in testirati inovativno varianto pristopa obrnjenega učenja, ki temelji na intenzivni uporabi geomedijev pri poučevanju geografije in geoinformatike. Predlagana varianta pristopa obrnjenega učenja se razlikuje od klasične v tem, da prenese aktivne oblike učenja (skupinske razprave, igra vlog itd.) iz učilnice v spletno sodelovalno računalniško okolje. Tako npr. poteka skupinska diskusija prek sodelovalnih dokumentov (*Google Docs*) namesto iz 'oči v oči'. Prednost tega načina pred klasičnim je v tem, da omogoča hiter pregled nad celotno vsebino diskusije in da se ohranja njena celotna zgodovina. Pristop obrnjenega učenja praviloma temelji na konceptu posredovanja znanja v okviru sodelovalnega dela, ki ga pogosto podpirajo tudi tehnika t. i. ravno ob pravem času navodil (ang. *just-in-time instructions*), skupinska diskusija, ipd. (Westermann, 2014).

Karta je eden pomembnih učnih pripomočkov pri poučevanju geografije. Z vpeljavo digitalne in spletne tehnologije so se načini uporabe karte pri poučevanju geografije spremenili. Karta kot del geomedijev je pomemben učni pripomoček za prikaz, oblikovanje, obdelavo, izdelavo (kart ali novih prostorskih slojev) in celo nadzor nad kakovostjo prostorskih podatkov. Geomediji so kakršnakoli oblika medijev, ki vsebuje ali prikazuje prostorsko geografsko informacijo (običajno z informacijsko-komunikacijsko tehnologijo) in je glede na definicijo lahko celo vsakršna novica, ki je vezana na lokacijo na Zemlji (Donert, Parkinson, Lindner-Fally, 2010; Strobl, 2014).

V prispevku predlagamo eksperimentalno zasnovo meritev nominalne osnove in oceno teh meritev na podlagi kriterijev ocenjevanja in ocenjevalne lestvice. Ocenjevalna lestvica je osnovana na rezultatih, ki so produkt individualnega in sodelovalnega učenja. S predlagano eksperimentalno zasnovo je mogoče razbrati razlike v doprinosu posameznikov ter skupin. V študiji povežemo predlagano varianto pristopa obrnjenega učenja s procesom ugotavljanja in ocenjevanja kakovosti geografskih podatkov.

Pri izvedbi eksperimentalne zasnove se osredotočimo na zasnovo postopkov ocenjevanja študentov s posebnim poudarkom na vplivu sodelovalnega učenja in uporabi interaktivnih geomedijskih orodij v obrnjeni učilnici. Ogrodje za ocenjevanje tvorijo naslednji elementi:

- ocenjevanje študentov;
- ocenjevanje sinergijskih učinkov sodelovalnega učenja;
- vrednotenje študentovega dela na podlagi ocen;
- ocenjevanje kakovosti s pomočjo primerjave in klasifikacije kakovosti študentov;
- analize na nivoju posameznikov in skupin (relativne meritve);
- rezultati študentov v primerjavi s profesionalno ocenjeno nominalno osnovo (absolutna meritev).

Orodja, s pomočjo katerih se je ocenjevala kakovost izvornih podatkov na podlagi razlik med mejo *Robinia pseudoacacia*, kartirane leta 2009 in 2010, ter razlik med atributnimi podatki, so:

- orodja, ki so jih za nadzor in preverjanje uporabljali študentje;
- orodja za ocenjevanje kakovosti študentovega dela;
- analiziranje kakovosti pridobljenih podatkov na podlagi ISO 19157;
- vzpostavitev referenčnih kriterijev za ocenjevanje;
- vrednotenje sinergijskih učinkov in lastnosti študentov.

V raziskavi je bilo zajetih 76 študentov, in sicer 72 s Filozofske fakultete (FF) v Ljubljani in štirje s Fakultete za informacijske študije (FIŠ) v Novem mestu. Študentje FIŠ so delo opravljali individualno, študentje FF so poleg treh prostovoljnih posameznikov tvorili tudi 12 skupin (4–6 študentov). Študentje so bili ocenjeni na podlagi referenčnega kriterija, ki je temeljil na razumevanju *ISO/TC 211 19157:2013 Geographic information – Data quality standard* (ISO 19157) standarda in na oceni nominalne osnove. Slaba ocena študenta pomeni, da je študent pri ocenjevanju daleč od nominalne osnove.

Pri analizi rezultatov posameznikov in skupin smo ugotovili, da so bili posamezniki v povprečju mnogo uspešnejši kot skupine. To še posebej velja za naloge, pri katerih je bila nujna uporaba kritičnega in kreativnega razmišljanja. Starostna in spolna sestava nista imeli vpliva na uspešnost posameznikov ali skupin. Pri uspešnosti študentov se relevantnost študija, t. j. študija, kjer se študentje urijo v prepoznavanju in definiranju geografskega prostora, ni izkazala kot bistvena prednost. Z izjemo identificiranja manj opaznih razlik uporaba interaktivnih geomedijskih orodij ni imela bistvenega vpliva na stopnjo zaznavanja in prepoznavanja prostorskih razlik.

Pri zaznavanju razlik med individualnim delom in delom skupin smo razvili postopek ugotavljanja unikatnih razlik z namenom ločiti doprinose ene in druge skupine študentov. V ta postopek je zajeta sinteza podatkov na nivoju dveh skupin: študentov FF in FIŠ skupaj ter posamezniki in skupine. Pri sintezi podatkov smo dobili obrnjeno sliko, in sicer da so skupine doprinesle bistveno večji delež prispevkov (93 %) k opredelitvi nominalne osnove kot posamezniki. Glavni vzrok za te razlike pripisujemo sinergijskemu učinku, osrednjemu elementu sodelovalnega učenja.

Študija odpira številna vprašanja v didaktični geografiji, kot npr. kako praktično optimizirati podajanje holističnega znanja in razumevanje učne vsebine, z namenom zagotovitve kakovostnejšega končnega izdelka študentov. Ker so metode poučevanja tesno povezane z učnim stilom in učno strategijo študentov, je nujno potrebno vzpostaviti najbolj optimalno metodo prenosa in predstavitve učne snovi, ki hkrati zagotavlja tako povratno informacijo med akterji kot primeren sistem ocenjevanja. Opredeljeno ogrodje za ocenjevanje in inovativno varianto pristopa obrnjenega učenja bomo poizkusili vzpostaviti tudi v osnovnih in srednjih šolah.

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ROMI IN ROMSKA NASELJA V SLOVENIJI

Jernej Zupančič: Romi in romska naselja v Sloveniji. Zbirka Razprave FF. Znanstvena založba Filozofske fakultete Univerze v Ljubljani, 255 str. Ljubljana, 2015

Romska naselja in njihovi prebivalci so bili v zadnjih dveh desetletjih pogosto v središču pozornosti širše javnosti, redkeje pa so se znašli v središču strokovnih raziskav. Knjiga Jerneja Zupančiča tako predstavlja prvo znanstveno delo, ki celostno obravnava problematiko romskih naselij v Sloveniji.

Delo je razdeljeno na šest poglavij in številna podpoglavja. Besedilo dopolnjuje raznoliko kartografsko, statistično in slikovno gradivo (v knjigi je 14 preglednic, 25 zemljevidov in shem, 11 grafikonov in 13 fotografij).

Uvodno poglavje je namenjeno kratki predstavitvi ključnih teoretskih in metodoloških izhodišč, ki so vodila avtorja pri preučevanju romskih naselij. Avtor opozarja, da so romska naselja poseben prostorski, socialni in kulturni pojav v slovenskem prostoru, s specifičnim nastankom, strukturo in razvojem. Obenem izpostavlja njihovo dinamičnost, zaradi katere romska naselja intenzivno spreminjajo svojo zunanjo podobo, strukturo in funkcijo. Uvodno poglavje se zaključi s kratkim pregledom oblikovanja romskih skupnosti po svetu.

Drugo poglavje je namenjeno predstavitvi Romov v Sloveniji, v prvi vrsti zgodovini naselitve in podatkom o njihovi številčnosti. Posebno podpoglavje je posvečeno vprašanju njihove teritorialnosti in avtohtonosti. V njem avtor argumentira tezo, da so Romi v določenih delih Slovenije zgodovinsko prisotni in zato predstavljajo avtohtono skupnost.

Romska naselja so v središču tretjega poglavja. Osnovni predstavitvi vseh romskih naselij v Sloveniji sledi opredelitev in opis glavnih značilnosti (lokacije, oblike in strukture) ter razvojnih dejavnikov. Hkrati so predstavljene glavne razvojne faze v njihovem oblikovanju. Poglavje se zaključi s kratko predstavitvijo ključnih problemov, s katerimi se soočajo romska naselja in njihovi prebivalci ter lokalne skupnosti, v katerih se nahajajo.

V četrtem poglavju avtor obravnava infrastrukturno opremljenost naselij. Predstavljeni so podatki o oskrbi s pitno vodo in elektriko, priključenosti na kanalizacijsko omrežje, urejenosti odvoza smeti ter prometni dostopnosti naselij. Zelo natančen popis infrastrukturne opremljenosti je nastal v okviru dveh raziskav, ki jih je pod avtorjevim vodstvom v letih 2007 in 2010 opravila Strokovna skupina za reševanje prostorske problematike romskih naselij v Sloveniji.

Predzadnje poglavje je namenjeno predstavitvi dobrih praks s področja urejanja romskih naselij. Pri primerih dobrih praks avtor izpostavlja nujnost oblikovanja partnerskega

odnosa med Romi, lokalno skupnostjo in državo. Izpostavljeni so primeri naselij Pušča v občini Murska Sobota, Vejar (Hudeje) v občini Trebnje, Željne v občini Kočevje in Vanča vas-Borejci v občini Tišina.

Zadnje poglavje – Romska naselja v procesih modernizacije – je bolj aplikativne narave. V njem avtor ponuja model načrtovalskih posegov, ki naj bi akterjem, vključenim v reševanje problematike, pomagal pri pripravi strategije vključevanja romskih naselij v slovenski naselbinski sistem. »*Koncept določa okvirni potek ukrepov in aktivnosti ter opredeljuje posamezne nosilce in predvideva etapne cilje.*« Po mnenju avtorja mora biti strateški cilj urejanja romskih naselij njihova demarginalizacija, dekonfliktualizacija in socialno-prostorska integracija. Hkrati zagovarja tezo, da je možno z načrtnim delom romska naselja v celoti vključiti v slovenski naselbinski sistem, ne da bi pri tem tvegali izgubo romske identitete.

Že uvodoma je bilo omenjeno, da je knjiga *Romi in romska naselja v Sloveniji* pionirsko delo. Kot takšno prinaša številne nove ugotovitve in spoznanja o romskih naseljih v Sloveniji. Ta predstavljajo za raziskovalce velik strokovni izziv, saj gre za zelo kompleksen pojav, katerega preučevanje zahteva znatno mero iznajdljivosti. Avtor se je tega dobro zavedal, zato je svoje raziskave osnoval na obširnem terenskem delu ter na vzpostavitvi neposrednih stikov s prebivalci romskih naselij in različnimi akterji, vključenimi v reševanje njihove problematike. Prav to daje predstavljenim ugotovitvam in spoznanjem še posebno težo in veljavo.

Knjiga na eni strani ponuja odlične temelje za nadaljnje raziskave, hkrati pa odpira številna vprašanja, probleme in izzive, ki so povezani s procesom preoblikovanja romskih naselij. Pri tem velja izpostaviti avtorjevo opazko, da predstavljene ugotovitve ne želijo biti nabor končnih spoznanj, ampak vodilo k nadaljnjemu poglobljenemu terenskemu preučevanju.

Kot vsako pionirsko delo ima tudi to določene pomanjkljivosti. Med njimi velja izpostaviti določeno mero nesistematičnosti, ki se kaže v mestoma ne najbolj logični delitvi na poglavja in podpoglavja, oziroma v pretirani razdrobljenosti na podpoglavja. Posledično so nekatere teme obravnavane na več mestih, določene ugotovitve pa se tu in tam nekoliko ponavljajo. Med pomanjkljivostmi velja omeniti še relativno površno obravnavo nekaterih teoretsko-metodoloških vprašanj, v prvi vrsti samega pojma romska naselja.

Delo *Romi in romska naselja v Sloveniji* ni namenjeno le geografom, ampak veliko širši publiki. Vsekakor pa bi moralo postati obvezno branje vseh akterjev, ki se vsakodnevno ali le občasno srečujejo s problematiko romskih naselij.

Boštjan Rogelj

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GEOGRAFSKO RAZISKOVANJE TURIZMA IN REKREACIJE V SLOVENIJI

Dejan Cigale, Barbara Lampič, Irma Potočnik Slavič, Blaž Repe (ur.): Geografsko raziskovanje turizma in rekreacije v Sloveniji. Zbirka GeograFF 15. Znanstvena založba Filozofske fakultete Univerze v Ljubljani in Oddelek za geografijo, 228 str. Ljubljana, 2014

V letu 2014 je zbirko znanstvenih monografij GeograFF obogatila monografija z naslovom *Geografsko raziskovanje turizma in rekreacije v Sloveniji*. Knjigo sestavlja osem prispevkov, ki se nanašajo na različne razsežnosti geografskega pogleda na turizem in rekreacijo v Sloveniji. Zadnja dva prispevka sta neposredno povezana z ustvarjanjem prof. dr. Matjaža Jeršiča na področju geografije turizma in rekreacije, saj je Oddelek za geografijo z monografijo želel izpostaviti pionirsko vlogo profesorja Jeršiča na področju geografskega preučevanja turizma in rekreacije v Sloveniji tako na znanstvenem kot tudi (planerskem) strokovnem področju ter tako obeležiti njegovo osemdesetletnico.

V prvem prispevku (*Značilnosti in težnje razvoja turizma v Sloveniji*) Dejan Cigale in Anton Gosar opredeljujeta značilnosti in težnje razvoja turizma v Sloveniji. V obsežni analizi najnovejših podatkov in teženj v razvoju turizma geografsko vrednotita pogoje za razvoj turizma in turizem kot gospodarsko dejavnost v Sloveniji. V nadaljevanju na osnovi dostopnih statističnih in drugih podatkov analizirata turistično ponudbo, turistično povpraševanje in motive tujih turistov za obisk Slovenije. Na koncu analize izpostavljata regionalne razlike v potencialih za razvoj turizma in rekreacije ter temeljne težnje v slovenskem turizmu.

V nadaljevanju Uroš Horvat (*Razvoj turizma v zdraviliških turističnih krajih v Sloveniji*), Dejan Cigale, Barbara Lampič in Irma Potočnik Slavič (*Geografske značilnosti turizma na kmetiji*) ter Simon Kerma (*Geografski prispevek k raziskovanju vinskega turizma*) podrobneje analizirajo tri specifične oblike turizma: zdraviliški turizem (ki ima že dolgo tradicijo na slovenskem ozemlju), turizem na kmetiji in novejšo tržno nišo, ki se nanaša na pojav vinskega turizma.

Dejan Cigale, Martina Herič, Sandra Kavčič in Miha Varga (*Značilnosti potovalnega ravnanja mlajših slovenskih turistov*) analizirajo značilnosti potovalnega ravnanja mlajših slovenskih turistov. S pomočjo analize rezultatov anketiranja avtorji opisujejo temeljne značilnosti turističnega ravnanja mlajših, a zelo aktivnih turistov. Miha Koderman (*Počitniška bivališča v občini Piran*) analizira razvoj, regionalno poreklo lastnikov in prostorske značilnosti počitniških bivališč v najbolj turistični slovenski občini.

Prvi vsebinski sklop sklepata Irena Mrak (*Ocena ranljivosti visokogorja kot osnova sonaravnemu razvoju turizma in rekreacije*) in Andrej Černe (*Zasnova uporabe prostora*

– *koncept primernosti (s posebnim ozirom na rekreacijo*). Irena Mrak izpostavlja ranljivost visokogorske pokrajine z vidika turizma in rekreacije na primeru Doline Triglavskih jezer in Kriških podov, s čimer opozarja na potrebo po ustreznem vrednotenju geografskih značilnosti ranljivih (zavarovanih) območij za potrebe načrtovanja turizma in rekreacije. Planerske vidike skozi koncept primernosti za razvoj turizma in rekreacije v svojem članku analizira tudi Andrej Černe. Koncept primernosti je bil razvit v sedemdesetih letih 20. st., v času oblikovanja strokovnih podlag za regionalni prostorski plan. Primernost prostora za rekreacijo na prostem je bil prav avtorski prispevek prof. Jeršiča.

Drugi del monografije je posvečen vlogi prof. dr. Matjaža Jeršiča pri razvoju slovenske geografije turizma in rekreacije. Dejan Cigale (*Prispevek prof. dr. Matjaža Jeršiča k razvoju slovenske geografije turizma in rekreacije*) analizira pogosto pionirski prispevek prof. Jeršiča na področju raziskovanja bližnje rekreacije, turizma v alpskem svetu in sekundarnih počitniških bivališč. Avtor ugotavlja, da Jeršičevo delo predstavlja ključni prispevek h geografskemu raziskovanju turizma in rekreacije v Sloveniji, pri čemer se prof. Jeršič ni osredotočal samo na gospodarski vidik obeh dejavnosti, ampak je ugotavljal tudi njune prostorske vidike ter njun pomen za kakovost življenja. Vsebinski sklop zaokrožuje *Bibliografija prof. dr. Matjaža Jeršiča*, ki jo je pripravila Ida Knez Račič.

Monografija *Geografsko raziskovanje turizma in rekreacije v Sloveniji* prinaša analizo in geografsko vrednotenje najnovejših podatkov s področja turizma, rekreacije in preživljanja prostega časa. Pri njenem ustvarjanju so sodelovali geografi različnih generacij, ki nadaljujejo delo prof. Jeršiča tako z geografskimi analizami turizma in rekreacije kot tudi z novejšimi pristopi in temami. Zaradi sodobnega, preglednega, a kompleksnega značaja in problemskega pristopa je GeograFF 15 dragocen znanstveni prispevek na področju geografije turizma in rekreacije v Sloveniji ter zato obvezna literatura za vse, ki se pri delu srečujejo z geografskim pogledom na turizem in rekreacijo, posebej pa še za študente geografije ter različnih smeri študija s področja turizma, prostorskega načrtovanja in ekonomije.

Simon Kušar

Dela 44 • 2015 • 135–150

VODNI VIRI BELE KRAJINE

Dušan Plut, Tajan Trobec, Barbara Lampič: Regionalni viri Slovenije. Vodni viri Bele krajine. Zbirka E-GeograFF 7. Znanstvena založba Filozofske fakultete Univerze v Ljubljani in Oddelek za geografijo, 104 str. Ljubljana, 2014

V elektronski zbirki znanstvenih monografij E-GeograFF Oddelka za geografijo ljubljanske Filozofske fakultete je z letom 2014 začela izhajati nova serija publikacij z naslovom *Regionalni viri Slovenije*, ki želi spodbujati geografsko raziskovanje regionalnih virov v državi in ga predstavljati tudi širši javnosti. Prva monografija omenjene serije obravnava vodne vire kot izjemno pomemben okoljski vir Bele krajine, ki je bil nekoč ključen poselitveni dejavnik, dandanes pa je lahko razpoložljivost in kakovost vode v kraški pokrajini bodisi razvojna omejitev ali potencial.

V celoviti študiji vodnih virov avtorji uvodoma predstavljajo hidrogeografske značilnosti Bele krajine, s poudarkom na značilnostih porečij belokranjskih voda, hidrogeografskih značilnostih vodotokov in vodni oskrbi območja. V nadaljevanju so prikazani izsledki obsežnega raziskovalnega dela, osnovanega na obširnem terenskem popisu in vrednotenju skupno 261 vodnih virov v vseh treh belokranjskih občinah, Črnomlju, Metliki in Semiču. Avtorji so s pomočjo študentov Oddelka za geografijo na obravnavanem območju popisali 196 izvirov, 48 stoječih površinskih vod (zlasti vaški in hišni kali ter ribniki) in 17 pomembnejših vodnih kraških jam, ki so v monografiji predstavljeni z bogatim slikovnim in kartografskim gradivom. Na številnih zemljevidih so pregledno prikazane popisane značilnosti vsakega izmed raziskanih vodnih virov, mdr. lega z nadmorsko višino, litološka sestava vplivnega območja vodnega vira, površina vodnega telesa pri stoječih površinskih vodah, povprečni pretok v sušnem obdobju leta in stalnost izvirov, vir napajanja stoječih površinskih voda, nekdanja raba vseh popisanih tipov vodnih virov in njihov pomen na začetku 21. st., sodeč po dostopnosti in zaraščenosti. Kljub kraški pokrajini in posledično redki ter slabo razvejeni rečni mreži je bogastvo popisanih vodnih virov veliko, terenska raziskava pa je ob sodelovanju lokalnega prebivalstva pred pozabo zagotovo ubranila mnoge, zlasti tiste, ki v predhodnih preučitvah še niso bili evidentirani in se njihova okolica pospešeno zarašča.

Monografija poleg temeljite predstavitve in vrednotenja značilnosti belokranjskih izvirov, stoječih voda in vodnih kraških jam prinaša tudi analizo vloge vodnih virov skozi čas in preučitev vplivov človekovih dejavnosti nanje. Za prihodnje načrtovanje rabe in varstva vodnih virov so pomembne ugotovitve o neposrednih in posrednih virih obremenjevanja s strani človekovih dejavnosti, pri čemer v največ primerih izstopata kmetijstvo

in poselitev. Prav ocena posredne in neposredne ogroženosti vodnih virov je bila v nadaljevanju izhodišče za oceno vodnoekološke ogroženosti in skupno oceno pokrajinske ranljivosti evidentiranih vodnih virov. Za oblikovanje slednje so avtorji izdelali tudi oceno hidrogeološke občutljivosti izvirov in vodnih kraških jam. V sklepnem delu bodo za načrtovalce razvoja Bele krajine dragocene predvsem zapisane usmeritve za prihodnje trajnostno upravljanje vodnih virov z izpostavitvijo tistih, ki bi morali biti deležni prednostne obravnave.

Monografija prinaša zanimive in uporabne izsledke tako za lokalno skupnost in zainteresirano javnost kot tudi za tiste, ki iščejo metodološke zglede za podobne preučitve v drugih pokrajinah. Spoznanj ne bi smeli zaobiti niti snovalci gospodarskega razvoja v belokranjskih porečjih niti okoljevarstveniki, ki bi morali pri oblikovanju vodovarstvenih režimov izhajati iz upoštevanja kraške vodnoekološke občutljivosti. V tem pogledu so spodbudna tudi opažanja avtorjev, da se lokalno prebivalstvo ponovno bolj zavzeto zanima za svoje vodne vire, kar se odraža tudi v številnih obnovah lokalnih zajetij, kalov in ribnikov ter prepoznavanju tovrstne naravne in kulturne dediščine. Zagotovo pa bo treba prebivalce še naprej ozaveščati o pomenu vodnih virov za zagotavljanje naravnega ravnovesja, ohranjanje biotske raznovrstnosti in drugih dragocenih ekosistemskih storitev.

V prepoznavanju in priznavanju strateške vloge vodnih virov za prihodnjo blaginjo prebivalstva in ekosistemov so predstavljena razmišljanja in raziskovalno delo vredni vsega posnemanja, bralcem pa je publikacija v celoti dostopna na spletni strani Oddelka za geografijo Filozofske fakultete: http://geo.ff.uni-lj.si/sites/default/files/12/e-geograff_7s1.pdf.

Katja Vintar Mally

Dela 44 • 2015 • 135–150

PROSTOČASNA POTOVANJA IN SLOVENSKO PREBIVALSTVO

Dejan Cigale: Prostočasna potovanja in slovensko prebivalstvo. Zbirka E-GeograFF 8. Znanstvena založba Filozofske fakultete Univerze v Ljubljani in Oddelek za geografijo, 106 str. Ljubljana, 2015

Avtor monografije se je lotil zanimive tematike prostega časa kot fenomena 20. st., njegovega preživljanja in najrazličnejših ekonomskih, okoljskih in tudi širših družbenih učinkov. Njen osrednji del je analiza rezultatov dveh obsežnejših raziskav, s katerima je poskušal ugotoviti, kako in kje slovensko prebivalstvo preživlja svoj prosti čas. Prva se ukvarja z zasebnimi turističnimi potovanji (brez poslovnih in drugih službenih potovanj) in izhaja iz podatkov za leto 2013, ki jih je zbiral Statistični urad Republike Slovenije. V drugi raziskavi se je avtor lotil obravnave kratkotrajnejših potovanj (izletov), ki niso navezana na »*na razmeroma redke dogodke, kakršne so počitnice, zato predstavlja[jo] za številne posameznike del rednega, običajnega prostočasnega ravnanja.*«. Podatke za analizo je zbiral s pomočjo dveh anket; s prvo (N = 1459) je poleg osnovnih značilnosti tovrstnih potovanj ugotavljal predvsem dejavnike, ki vplivajo na izbiro ciljev in kakovostnega preživljanja prostega časa, z drugo (N = 362) pa je poskušal rezultate postaviti v širši družbeni kontekst in ugotoviti, kakšen pomen nasploh pripisujejo posamezniki prostemu času. Primerjava dobljenih rezultatov z ugotovitvami desetletje in več starimi preučevanji je pokazala zanimive razlike, te pa je avtor v nadaljevanju tudi izčrpno pojasnil v širšem, geografskem kontekstu, ki daleč presega zgolj ekonomski vidik turizma.

Monografija je razdeljena na devet poglavij in vrsto podpoglavij, iz katerih je razmeroma dobro razvidna rdeča nit avtorjevega razmišljanja, ni pa branje posebej 'lahkotno'. V delu se namreč tesno prepletata dva načina preživljanja prostega časa (počitniška in druga daljša potovanja ter izletništvo), ki jih je takorekoč nemogoče povsem ločiti, ter dejavniki privlačnosti in odvračanja (avtor jih imenuje 'moteči dejavniki' oziroma 'moteče značilnosti izletniškega območja'). Nekateri od teh dejavnikov so povezani z značilnostmi ciljnih območij, drugi z družbenim statusom in ostalimi značilnostmi posameznika, obenem pa se je moral avtor še precej ubadati s terminološkimi zagatami.

V prvem delu monografije, ki se ukvarja z zasebnimi turističnimi potovanji, so poleg nekaterih splošno poznanih ugotovitev (npr. Hrvaška kot glavni cilj tovrstnih potovanj, večji delež potovanj med mlajšo generacijo kot med upokojenci), prav tako zanimivi trendi v skupini, ki ni bila v letih 2012 in 2013 na nobenem takšnem potovanju in bi jih bilo morda koristno še natančneje analizirati: povečal se je npr. delež ljudi, ki ni potoval

iz finančnih razlogov (2012: 49,0 %; 2013: 54,4 %), in tistih, ki ne čutijo nobene potrebe po potovanju (s 15,6 na 16,4 %).

Drugi del monografije je še zanimivejši, saj obravnava bolj vsakdanji del preživljanja prostega časa, ki ni vezan na čas dopustov in za katerega so poleg rekreacijskih aktivnosti značilni predvsem enodnevni izleti. Ta del našega vsakdana je po mnenju avtorja tesno povezan s socialnimi in demogeografskimi značilnostmi posameznikov ter njihovimi rekreacijskimi navadami. Prav tako se v tem kažejo zanimive posebnosti naše družbe, npr. izrazita prevlada osebnega avtomobila (uporablja ga kar 84,4 % anketirancev, v veliki meri zaradi slabo urejenega javnega potniškega prometa), precejšnja priljubljenost kolesa (14,7 % anketirancev), zelo majhen delež izletnikov 'samotarjev' (9,9 %) in izrazita prevlada enodnevnih izletnikov (86,2 %).

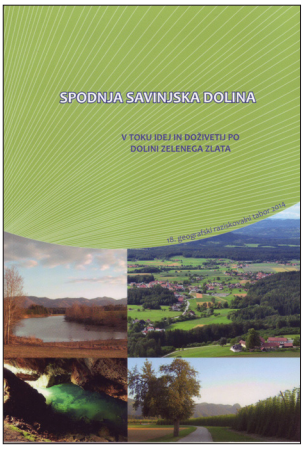
Zelo zanimive so tudi ugotovitve o dejavnikih, ki vplivajo na izbiro izletniškega cilja, a je v takšni študiji nemogoče zajeti celotno paleto teh dejavnikov, tudi sociooloških, psiholoških in drugih negeografskih nagibov. Avtorjeva analiza rezultatov anketiranja nakazuje čisto nove geografske izzive in ponuja obilo gradiva za geografovo razmišljanje o zapletenih odnosih med človekom in okoljem, npr. kaj si ljudje predstavljamo pod pojmoma 'privlačna pokrajina' ali 'čisto okolje', ki sta po mnenju anketirancev daleč najpomembnejša dejavnika pri izbiri izletniškega cilja.

Predstavljeno delo D. Cigaleta je lepo napisana in urejena geografska monografija, ki ponuja zanimivo branje tudi nestrokovnjaku, predvsem pa jo lahko ocenjujemo kot pomemben prispevek k širšemu razumevanju zelo zapletenega pojava preživljanja prostega časa. Morda se v eni od iztočnic, da turizma in prostočasnih dejavnosti ne smemo obravnavati zgolj z ekonomskega vidika, čeprav sta nesporno pomembni gospodarski dejavnosti, nakazujejo tudi namigi, kako bi lahko s širšim pogledom na ta del družbenega delovanja dvignili kakovost preživljanja prostega časa in hkrati dosegli boljše ekonomske učinke. Monografija je v celoti dostopna bralcem na spletni strani Oddelka za geografijo Filozofske fakultete: http://geo.ff.uni-lj.si/sites/default/files/egeograff_8_prostocasna_potovanja_0.pdf.

Karel Natek

Dela 44 • 2015 • 135–150

SPODNJA SAVINJSKA DOLINA: V TOKU IDEJ IN DOŽIVETIJ PO DOLINI ZELENEGA ZLATA



Alenka Jelen, Miha Klemenčič, Estera Popovič (ur.): Spodnja Savinjska dolina: v toku idej in doživetij po dolini zelenega zlata. Društvo mladih geografov Slovenije, 191 str. Ljubljana, 2015

Že 18. geografski raziskovalni tabor, ki ga je kot že tolikokrat doslej pripravil naš geografski podmladek, je potekal od 5. do 13. julija 2014 v Spodnji Savinjski dolini, prizadevni organizatorji pa so leto kasneje izdali še zajeten zbornik prispevkov z glavnimi rezultati raziskovalnega dela. Zelo lepo urejen zbornik vsebuje kar 21 tehtnih člankov z zanimivo in raznovrstno geografsko vsebino, zahtevno uredniško delo pa so opravili Alenka Jelen, Miha Klemenčič in Estera Popovič, ki jih moram posebej pohvaliti za opravljeno delo.

Čeprav so se študentje na raziskovalnem taboru osredotočili na nekaj ključnih geografskih oziroma razvojnih problemov, so v prvem delu zbornika sistematično, v besedi in z lepo izdelanimi kartami, predstavili poglavitne fizično- in družbenogeografske značilnosti preučevane pokrajine. Že v ta del preučevanja je bilo vloženega veliko dela, ki se je začelo s preučevanjem različnih virov že več mesecev pred raziskovalnim taborom in nadaljevalo s terenskim preučevanjem v občasno zelo hudi poletni pripeki. Rezultat prizadevnega dela so kompaktno napisani, strokovno tehtni prispevki udeležencev tabora – od geomorfoloških in klimatskih do prebivalstvenih, okoljskih, gospodarskih in drugih značilnosti preučevanega območja.

Uspešna nadgradnja tega dela so prispevki v drugem delu zbornika, ki so rezultat terenskega preučevanja v času raziskovalnega tabora. Pri tem moram posebej izpostaviti odločitev, da zbornika niso razdelili na dva dela (splošni in posebni), saj so s tem jasno pokazali, da geografija ni nekakšna 'površna' veda, marveč veda, ki sicer res izhaja iz zelo širokih izhodišč (naravnih in družbenih), vendar pa ji ravno takšen pogled na pokrajino omogoča poseči v jedro zapletenih pokrajinskih sistemov, razumeti problematiko pokrajine in iz nje izluščiti konkretne, uresničljive rešitve. To je zapisano tudi v predgovoru in razveseljivo je, kako so naši mladi geografi prepričani, da »... *takšni raziskovalni tabori in zborniki prispevajo k širjenju pomena geografije v družbi ...[saj] je že v osnovi zelo interdisciplinarna veda, kar omogoča širši pogled na različne tematike.*«

Večji del raziskovalnega tabora je potekal v obliki tematskih delavnic (hmeljarstvo, vodni viri, turizem, vpliv intenzivnega kmetijstva na prst in vodo, geodiverziteta), rezultati pa so predstavljeni v petih skupinskih člankih v drugem delu zbornika.

Prvi prispevek iz tega sklopa se ukvarja s prihodnjimi možnostmi hmeljarstva, ki je sicer močno zaznamovalo pokrajinsko podobo in do pred leti tudi način življenja v tem

delu Slovenije, vendar je trenutno v hudi krizi, tudi zaradi izrazite izpostavljenosti dogajanju na svetovnem trgu hmelja. Površine hmeljišč in pridelek hmelja sta se v obdobju 1965–2013 več kot prepolovila, kar je najbolj prizadelo manjše pridelovalce, pridelava hmelja pa se je skoncentrirala na velikih specializiranih kmetijah (1965: 2500 hmeljarskih kmetij; 2013: 136). Avtorji prispevka predlagajo delno preusmeritev v pridelavo drugih poljščin (predvsem fižola v opuščenih hmeljskih žičnicah in industrijske konoplje), iskanje novih možnosti uporabe hmelja (npr. v farmaciji in kozmetični industriji) ter vzgojo novih aromatičnih sort hmelja, ki bi dajale žlahten pridelek za majhne, a po kvaliteti piva prestižne domače in tuje pivovarne.

Raziskovalna skupina, ki se je ukvarjala z vodnimi viri, se je prav tako znašla pred zahtevnimi problemi: na eni strani velika poplavna nevarnost, ki jo država namerava zmanjšati z izgradnjo številnih velikih suhih zadrževalnikov, na drugi strani nujnost pridobivanja novih vodnih količin za potrebe umetnega namakanja. Namesto finančno in prostorsko zahtevnega parcialnega reševanja obeh zadev študentje predlagajo tehtnejšo in sprejemljivejšo rešitev: izgradnjo mokrih zadrževalnikov na skrbno pretehtanih lokacijah, s katerimi bi hkrati zmanjšali poplavno nevarnost, zagotovili dodatne količine vode za namakanje in ustvarili nove mokrotne habitate.

Tretji prispevek je delo skupine, ki je preučevala možnosti razvoja turizma in je, za razliko od mnogih tovrstnih del, izhajala s stališča potencialnega obiskovalca in ne ponudnikov storitev. Kot prepoznavna elementa je opredelila hmeljarstvo in fevdalce z gradu Žovnek (poznejši Celjski grofje) ter izdelala več konkretnih turističnih paketov, ki bi jih mogle skupaj tržiti vse občine tega območja, mdr. Pot zlate kobulice, Grajske sledi, Od kose do kozolca, Čista energija ipd.

Negativne učinke intenzivnega kmetijstva na prsti in vodo je preučevala četrta skupina, pri čemer je uporabila model DPSIR in na osnovi poglobljene analize stanja predlagala vrsto ukrepov za izboljšanje stanja: od različnih možnosti zmanjšanja vnosa onesnaževal v prst in vodo do uvajanja dobrih kmetijskih praks ter ekoremediacijskih ukrepov na kmetijskih zemljiščih in v vodotokih.

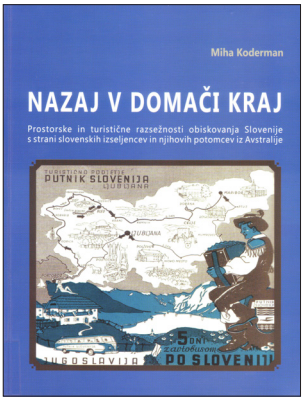
Peta tematska delavnica se je ukvarjala z vrednotenjem geodiverzitete na primeru krajinskega parka Ponikovska planota. Tehtno analizo ključnih dejavnikov geodiverzitete in že prepoznanih naravnih vrednot so nadgradili s poskusom kvantitativnega vrednotenja geodiverzitete in ugotovili, da je ta največja v severovzhodnih in zahodnih delih planote. Zelo pomembna je tudi njihova ugotovitev, da sta za ohranitev privlačnosti tega območja enako ključna ohranjanje kulturne pokrajine in aktivno varovanje naravnih vrednot.

Zelo razveseljivo je, da postajajo rezultati študentskih raziskovalnih taborov v zadnjih letih vse tehtnejši in strokovno poglobljeni. Z njimi naši študentje dokazujejo lastne strokovne zmožnosti, ki jih morda do neke mere celo podcenjujemo. Tudi tokratni zbornik kaže, da so sposobni prizadevnega delovanja in doseči visok strokovni nivo ter lokalnim in širši skupnosti ponuditi tehtne in povsem uporabne rešitve. Vsi skupaj si moramo prizadevati, da z odhodom te generacije študentov njihovim naslednikom ne bo zmanjkalo veselja do tovrstnega in podobnih načinov uveljavljanja geografije.

Karel Natek

Dela 44 • 2015 • 135–150

NAZAJ V DOMAČI KRAJ. PROSTORSKE IN TURISTIČNE RAZSEŽNOSTI OBISKOVANJA SLOVENIJE S STRANI SLOVENSKIH IZSELJENCEV IN NJIHOVIH POTOMCEV IZ AVSTRALIJE



Miha Koderman: Nazaj v domači kraj. Prostorske in turistične razsežnosti obiskovanja Slovenije s strani slovenskih izseljencev in njihovih potomcev iz Avstralije. Univerzitetna založba Annales, 219 str. Koper, 2015

V letošnjem letu je pri Univerzitetni založbi Annales izšlo delo Mihe Kodermana z naslovom *Nazaj v domači kraj. Prostorske in turistične razsežnosti obiskovanja Slovenije s strani slovenskih izseljencev in njihovih potomcev iz Avstralije*. Delo na izčrpen in poglobljen način obravnava problematiko turizma slovenske emigracije, oziroma njenega turističnega obiskovanja Slovenije, ki je bila doslej prejkone zanemarjena.

V začetnem delu avtor predstavi pojme in koncepte z obravnavanega področja, pri čemer nameni pozornost turističnim potovanjem, povezanim z obiskovanjem prijateljev in sorodnikov, etničnemu turizmu ter turizmu iskanja korenin. Sledi temeljit pregled literature s področja t. i. turizma iskanja korenin. Posebna pozornost je namenjena tudi obravnavi te tematike v slovenski literaturi.

V tretjem poglavju avtor obravnava slovensko izseljensko skupnost v Avstraliji. Predstavljeni so zgodovina slovenskega izseljevanja v to državo, prostorska razporeditev slovenske skupnosti v Avstraliji in njena društvena organiziranost. V četrtem poglavju se avtor posveti turističnemu obisku nekdanje Jugoslavije in Slovenije s strani slovenskih izseljencev v preteklosti. Pri oblikovanju poglavja je uporabil številne vire, v ta namen je opravil tudi več razgovorov in intervjujev. Predstavljeni so tako podatki o turističnem obisku kot tudi organizatorji in itinerarji potovanj.

Naslednje poglavje je namenjeno analizi obiska slovenskih izseljencev v Avstralijo in njihovih potomcev v Sloveniji. Povzema rezultate anketne raziskave, ki je bila izvedena med slovenskimi izseljenci v Avstraliji, in sicer predvsem tistimi, ki se vključujejo v organizirane oblike skupnosti. Anketiranje je zajelo polnoletne osebe slovenskega izvora s stalnim prebivališčem v Avstraliji, ki so v dveh desetletjih pred izvajanjem anketne raziskave vsaj enkrat potovale v Slovenijo. Anketna raziskava je med drugim obravnavala motive za potovanje, način, pogostost in finančne vidike potovanja, vrste objektov, v katerih so anketiranci bivali (komercialni nastanitveni objekti, sorodniki, lastne hiše ...), obiskana območja v Sloveniji in zunaj nje, vpliv obiskovanja Slovenije na občutek kulturne

in družinske pripadnosti, pa tudi negativne izkušnje pri potovanju po Sloveniji. Slednjih večina anketirancev niti ni imela.

Šesto poglavje obravnava aktivnosti in odnos gostiteljev do sorodnikov in prijateljev slovenskega izvora ob njihovem obisku Slovenije. V tem poglavju so predstavljeni podatki, pridobljeni s pomočjo raziskave, ki je bila izvedena v letih 2008–2010. Vanjo so bili vključeni posamezniki, ki so v preteklosti že gostili osebe slovenskega rodu, živeče v tujini. V raziskavi je bila pozornost namenjena državi porekla gostujočih oseb, povprečni dobi bivanja in pogostosti obiska, finančnim vidikom obiska, obiskanim območjem ter vplivu obiskov na gostitelje. Avtor v zaključku med drugim ugotavlja, da bi turistična potovanja, kakršna so bila predmet obravnave, mogoče ustrezneje označili kot turizem obiskovanja sorodnikov in ne kot turizem iskanja korenin. Hkrati opozarja, da predstavlja takšen turizem tudi priložnost, da bi med mlajšimi generacijami sprožili zanimanje za družinsko in etnično zgodovino ter s tem pojav pravega turizma iskanja korenin.

Kot je zapisal avtor, je predstavljeno delo mogoče razumeti kot »*poskus zapolnitve relativne praznine, ki se kaže na področju poglobljenega znanstvenega preučevanja razsežnosti turizma izseljencev*«. V delu je ta tematika obravnavana z več zornih kotov ter ob uporabi različnih, a komplementarnih metod. Avtor je pri raziskovalnem delu uporabil obsežen nabor literature in izvedel dve empirični raziskavi, hkrati pa uporabil še različne druge podatkovne vire in opravil številne razgovore. Obenem tudi kritično opozarja na dileme in vprašanja, ki so ostala neodgovorjena in bi lahko bila predmet prihodnjih raziskav. Kot pomembno kvaliteto monografije je mogoče omeniti tudi to, da je nastala kot rezultat obsežnega terenskega dela v Avstraliji. S tem povezane neposredne izkušnje in stiki z izseljenci/'turisti' so še toliko bolj dobrodošli, saj pri obravnavani tematiki niso v ospredju samo (sicer nedvomno pomembni) ekonomski učinki, ampak tudi številne druge raznorodne dimenzije preučevanega pojava, vključno z ohranjanjem slovenske identitete in vezi z domovino.

Monografija prinaša nove in tehtne ugotovitve o obravnavani tematiki, ki je bila pred tem le skromno poznana in to kljub velikemu številu slovenskih izseljencev v tujini. Delo tako predstavlja uspelo in zelo hvalevredno zapolnitev vrzeli na tem področju, hkrati pa daje celovito podobo pojava, ki je ostajal na obrobju zanimanja raziskav s področja turizma in – na drugi strani – raziskovanja slovenskega izseljenstva. Tudi zaradi tega si zasluži vso pozornost strokovne (in širše) javnosti.

Dejan Cigale

Dela 44 • 2015 • 135–150

ILEŠIČEVI IN MELIKOVI DNEVI 2015 – NOVOSTI GEOGRAFSKE STROKE IN IZOBRAŽEVANJE OSEB S POSEBNIMI POTREBAMI

Koper, 25. in 26. september 2015

V letu 2015 so bili Ilešičevi in Melikovi dnevi prvič organizirani kot skupni dogodek. Potekali so med 25. in 26. septembrom 2015 v Kopru, udeležilo pa se jih je 121 udeležencev. Strokovno srečanje so organizirali Oddelek za geografijo Filozofske fakultete Univerze v Ljubljani, Zveza geografov Slovenije in Oddelek za geografijo Fakultete za humanistične študije Univerze na Primorskem, s soorganizatorstvom Osnovne šole Koper, Oddelka za geografijo Filozofske fakultete Univerze v Mariboru in Geografskega inštituta Antona Melika ZRC SAZU. Srečanje je potekalo v Kopru, v prostorih Fakultete za humanistične študije in na Osnovni šoli Koper.

V dopoldanskem delu prvega dne so bile najprej predstavljene tematike s področja izobraževanja oseb s posebnimi potrebami. Dr. Božidar Opara je predstavil pomen vključevanja oseb s posebnimi potrebami v redni del šolskega sistema ter opisal naloge učiteljev, tudi geografije, v inkluzivni šoli. Dr. Karmen Kolnik in dr. Tatjana Resnik Planinc sta v nadaljevanju predstavili rezultate raziskave o usposobljenosti učiteljev za delo z učenci s posebnimi potrebami, dr. Irena Hergan in dr. Maja Umek pa sta dopoldanski del srečanja sklenili s prispevkom *Osebe s posebnimi potrebami v procesu geografskega izobraževanja – razredni pouk*, v katerem sta med drugim navedli tudi nekaj primerov prilagoditev pri poučevanju geografskih vsebin za učence s posebnimi potrebami.

Sledile so predstavitve novosti s področja geografske stroke. Dr. Simon Kušar je predstavil geografske vidike zadnje finančno-gospodarske krize, dr. Damir Josipovič socialno- in političnogeografske posledice gospodarske krize v Sloveniji, dr. Vladimir Drozg pa je na primeru Lenarta v Slovenskih goricah pojasnil socialno zgradbo mesta. Dr. Irma Potočnik Slavič je predstavila proces staranja prebivalstva kot enega glavnih razvojnih problemov podeželja v drugi polovici 20. st., Špela Guštin pa t. i. agentno modeliranje, s pomočjo katerega lahko opazujemo pojavljanje konfliktov interesov v prostoru in času. Dr. Mateja Breg Valjavec, dr. Rok Ciglič, dr. Mateja Ferk in dr. Matija Zorn so predstavili prispevek z naslovom *Mejna reka – viri za spremljanje dinamike rečnega toka*, s katerim so predstavili dinamiko spreminjanja rečnega toka Drave in Dragonje v zadnjih dveh stoletjih. Prvi del prvega dne pa je bil sklenjen s predstavitvijo dr. Mimi Urbanc, mag. Jerneje Fridl in dr. Tatjane Resnik Planinc o problemih poimenovanja slovenskih regij v vzgojnoizobraževalnem sistemu.

V drugem delu prvega dne sta bili organizirani dve obliki terenskega dela, in sicer so lahko udeleženci izbirali med vodenim ogledom Luke Koper ali vodenim ogledom mesta Koper. Nato so sledile predstavitve prispevkov. Najprej je Helena Tomšič predstavila problematiko vključevanja priseljenskih otrok v osnovno šolo, dr. Nataša Kolega, dr. Gregor Kovačič in dr. Valentina Brečko Grubar problematiko razpoložljivosti vode za

oskrbo in občutljivost vodnih okolij za onesnaževanje v Slovenski Istri, dr. Aleš Smrekar pa estetiko pokrajinskih oblik v Slovenski Istri. Plenarni del predavanj prvega dne je s svojo predstavitvijo zaključil dr. David Bole, ki je predstavil prometno rabo v prostoru.

Prvi dan se je zaključil s slavnostno podelitvijo priznanj Zveze geografov Slovenije in Društva učiteljev geografije Slovenije za izjemne dosežke in zasluge na področju poučevanja geografije in geografske stroke.

V prvem delu drugega dne so dr. Uroš Stepišnik, Mojca Ilc Klun in dr. Blaž Repe najprej predstavili metodo vrednotenja geodiverzitete, s pomočjo katere so avtorji določili izobraževalni potencial Cerkniškega polja, Igor Kuzma je predstavil spletno GIS aplikacijo *Stage*, ki je uporabna za prikazovanje in posredovanje geoprostorskih statističnih podatkov, dr. Marko Krevs, dr. Blaž Repe, dr. Tatjana Resnik Planinc, dr. Tajan Trobec, Tanja Koželj, Nejc Bobovnik in Katia Štefanić pa so za udeležence pripravili delavnico na temo šola v oblaku in pokazali, kako lahko učitelji s svojo mobilno napravo prispevajo k spletni karti ovir za gibalno prikrajšane v starem mestnem jedru Kopra. Dr. Matej Ogrin in Danijela Strle sta predstavila znižano mejo sneženja na primeru doline Planice in doline v okolici Rateč, dr. Matej Ogrin in Erika Sitar pa gradiente količine padavin v alpskih dolinah. V drugem delu drugega dne je Peter Kumer predstavil značilnosti in posebnosti zasebnih lastnikov majhnih gozdnih posesti, dr. Jani Kozina pa lokacijske dejavnike družbe znanja. Ilešičeve in Melikove dneve sta s svojo predstavitvijo sklenili dr. Aksinja Kermauner in Marija Repe Kocman, ki sta udeležencem na nazoren način in s pomočjo uporabe številnih pripomočkov prikazali delo učitelja s slepimi in slabovidnimi učenci, tudi pri poučevanju geografije.

Na Ilešičevih in Melikovih dnevih je bil na ogled tudi plakat Patricije Prelc z naslovom *Določanje recentnih sprememb na klifih na slovenski obali s pomočjo podatkov lidarskega snemanja* in razstava Polone Kussel z naslovom *Učila za slepe in slabovidne učence*.

Mojca Ilc Klun

Udeleženci zborovanja med terenskim delom v Kopru (foto: M. Krevs)

Dela 44 • 2015 • 135–150

MEDNARODNA KONFERENCA S TEMATIKO PODEŽELJA

Zadar, 4.– 6. september 2014

Hitre spremembe, ki jih sedanji čas vnaša na podeželje, njegova večfunkcijska vloga, številni akterji in razvojni potenciali sodobnega podeželja so na mednarodno znanstveno konferenco (*Contemporary development of European rural areas*), ki je od 4. do 6. septembra potekala v Zadru, privabili 130 znanstvenikov in strokovnjakov iz 14 držav. V sklopu več tematskih sekcij je bilo predstavljenih 73 prispevkov. V skupni organizaciji geografskih oddelkov Vseučilišča v Zadru in Filozofske fakultete v Ljubljani, z veliko medijsko odmevnostjo in z zanimivim programom se je mednarodna strokovna skupnost tri dni spoznavala s sodobnimi raziskovalnimi in razvojnimi težnjami na področju podeželja.

Kar lepo število prispevkov je izpostavilo pomen problemsko-časovnega raziskovalnega pristopa (vzroki in posledice različnih demografskih in gospodarskih teženj v daljšem časovnem obdobju). Večina prispevkov je temeljila na podrobni empirični analizi izbrane podeželske pokrajine oziroma skrbni preučitvi njenih razvojnih potencialov (za specializirane kmetijske dejavnosti, razvoj turizma na podeželju, krepitev skupnosti ipd.). Nekateri prispevki so izpostavljali dejavnike, ki slabijo razvojne možnosti podeželja, kot so pomanjkanje kmetijskih zemljišč, slaba dostopnost, demografska erodiranost, nespodbudno podjetniško okolje, šibka vloga regionalnega planiranja, novim razmeram neprilagojene javne ustanove in nestabilna gospodarsko-politična situacija. Posamični teoretični prispevki so izpostavljali ranljivost podeželja v obdobju globalizacije, problematiko upravljanja, diverzifikacije dejavnosti in dohodkov na podeželju ter ožje in širše nepovezanosti podeželskih skupnosti.

Posebej je potrebno poudariti, da so bile na konferenci zastopane različne znanstvene discipline (geografija, agronomija, krajinska arhitektura, sociologija, ekonomija, politične vede itd.), ustanove (izobraževalne ustanove, podjetniki, javni zavodi, nevladne organizacije, samostojni podjetniki) in generacije strokovnjakov (zlasti močno je bila zastopana mlajša generacija magistrskih in doktorskih študentov).

V živahnih razpravah, ki so sledile predstavitvam, so se nakazali predvsem: (1) odsotnost medsektorskega sodelovanja pri načrtovanju razvoja podeželja; (2) prevladujoč ad hoc značaj sprejetih ukrepov; (3) pomanjkanje poglobljenih interdisciplinarnih študij in (4) povsod prisoten velik konfliktni potencial, saj so na sodobnem podeželju njegovi viri v primežu zelo raznovrstnih interesov.

V metodološkem smislu je potrebno izpostaviti velik napredek pri uporabi sodobnih GIS idr. orodij, številnih drugih kvantitativnih in kvalitativnih metod ter prevzemanje najbolj uveljavljenih razvojnih paradigem in konceptov. Pri iskanju konkretnih razvojnih usmeritev je bilo mogoče zaznati precejšnje posploševanje oziroma izpostavljanje primerov dobrih praks. Zato imajo še večjo težo nekateri inovativni pristopi, tako pri razvoju kot pri preučevanju podeželja (potrebe po spremenjenem upravljanju, mrežno širjenje inovacij, kombinacija vpetosti v lokalno in mednarodno okolje ipd.). Prav posebno noto

pa je kakovostnemu in prijetnemu strokovnemu druženju pridalo tudi terensko delo na Kornatih, saj je smiselno *in situ* povzelo precej razširjeno razpravo o razvojnih usmeritvah zavarovanih območij.

Bogate ugotovitve bodo objavljene v znanstvenih revijah Geoadria in DELA. Dobro povezana mednarodna podeželska skupnost se bo po vsej verjetnosti naslednjič sestala še v tem desetletju v Sloveniji.

Barbara Lampič in Irma Potočnik Slavič

V narodnem parku Kornati (foto: K. Natek)

NAVODILA AVTORJEM ZA PRIPRAVO PRISPEVKOV V ZNANSTVENI REVIJI DELA

1. Znanstvena revija DELA je periodična publikacija Oddelka za geografijo Filozofske fakultete Univerze v Ljubljani. Izhajajo od leta 1985. Namenjena so predstavitvi znanstvenih in strokovnih dosežkov z vseh področij geografije in sorodnih strok. Od leta 2000 izhajajo dvakrat letno v tiskani in elektronski obliki (http://revije.ff.uni-lj.si/Dela). Revija je uvrščena v mednarodne baze (Scopus, CGP – Current Geographical Publications, GEOBASE, Central and Eastern European Academic Source, GeoRef, Russian Academy of Sciences Bibliographies, TOC Premier, International Bibliography of the Social Sciences, DOAJ, ERIH PLUS) in ima mednarodni uredniški odbor.
2. V prvem delu so objavljeni prispevki v rubrikah RAZPRAVE (izvirni znanstveni članki 1.01 po kategorizaciji COBISS) in RAZGLEDI (praviloma pregledni znanstveni 1.02 in strokovni članki 1.04). V drugem delu se objavljajo informativni prispevki v rubriki POROČILA, in sicer biografski prispevki (obletnice, nekrologi), predstavitve geografskih monografij in revij, pomembnejše geografske prireditve in drugi dogodki idr.
3. Prispevki v rubrikah RAZPRAVE in RAZGLEDI morajo imeti naslednje sestavine:
   - naslov članka;
   - avtorjev predlog rubrike (avtor naj navede, v kateri rubriki želi objaviti svoj članek);
   - ime in priimek avtorja/avtorjev;
   - avtorjev akademski naziv (npr. dr., mag., prof. geogr. in zgod.);
   - avtorjev poštni naslov (npr. Oddelek za geografijo Filozofske fakultete Univerze v Ljubljani, Aškerčeva cesta 2, SI-1000 Ljubljana);
   - avtorjev elektronski naslov;
   - izvleček (skupaj s presledki do 500 znakov);
   - ključne besede (do 8 besed);
   - abstract (angleški prevod naslova članka in slovenskega izvlečka);
   - key words (angleški prevod ključnih besed; do 8 besed);
   - besedilo članka (skupaj s presledki do 30.000 znakov za RAZPRAVE oziroma do 20.000 znakov za RAZGLEDE;
   - summary (angleški prevod povzetka članka, skupaj s presledki od 5000 do 8000 znakov);
   - ime prevajalca.
4. Članek naj ima naslove poglavij in naslove podpoglavij, označene z arabskimi številkami v obliki desetiške klasifikacije (npr. 1 Uvod, 2 Metode, 3 Rezultati in razprava, 4 Sklep, Viri in literatura ipd.). Razdelitev članka na poglavja je obvezna, podpoglavja naj avtor uporabi le izjemoma.

5. Avtorji naj prispevke pošljejo na naslov uredništva, natisnjene v enem izvodu na papirju in v digitalni obliki v formatih *.doc ali *.docx. Digitalni zapis besedila naj bo povsem enostaven, brez slogov in drugega zapletenega oblikovanja, brez poravnave desnega roba, deljenja besed, podčrtavanja in podobnega. Avtorji naj označijo le krepki in ležeči tisk. Besedilo naj bo v celoti izpisano z malimi tiskanimi črkami (velja tudi za naslove in podnaslove, razen velikih začetnic), brez nepotrebnih krajšav, okrajšav in kratic.
6. Zemljevidi, grafične priloge in fotografije morajo upoštevati največjo velikost v objavljenem delu, to je 125 x 180 mm. Rastrski formati (*.tiff ali *.jpg) morajo biti oddani v digitalni obliki z ločljivostjo najmanj 300 pik na palec (dpi). Zemljevidi in druge grafične priloge v vektorski obliki (*.ai, *.pdf, *.cdr) morajo vsebovati fonte, večje od 6 pt. Zemljevidi, izdelani v okolju ArcGIS, se lahko oddajo tudi kot »*Map Package*« (*.mpk) s končno postavitvijo (*Layout*). Grafikoni morajo biti izdelani s programom *Excel* ali sorodnim programom (avtorji jih oddajo skupaj s podatki v izvorni datoteki, npr. Excelovi preglednici). Če avtorji ne morejo oddati prispevkov in grafičnih prilog v navedenih oblikah, naj se predhodno posvetujejo z urednikom. Za grafične priloge, za katere avtorji nimajo avtorskih pravic, morajo priložiti fotokopijo dovoljenja za objavo, ki so ga pridobili od lastnika avtorskih pravic.
7. Avtorji so dolžni upoštevati način citiranja v članku ter oblikovanje seznama virov in literature, preglednic in ostalega grafičnega gradiva, kot je to navedeno v podrobnejših navodilih za pripravo člankov na povezavi http://revije.ff.uni-lj.si/Dela/about/submissions#authorGuidelines. Za dela, ki jih je avtor uporabil v elektronski obliki, naj poleg bibliografskih podatkov navede še elektronski naslov, na katerem je delo dostopno bralcem, in datum citiranja. Za znanstvene članke s številko DOI avtorji navedejo samo DOI številko.
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Department of Geography, Faculty of Arts, University of Ljubljana

Založnik — Published by
Znanstvena založba Filozofske fakultete Univerze v Ljubljani

Izdajatelj — Issued by
Oddelek za geografijo, Filozofska fakulteta Univerze v Ljubljani

Za založbo — For the Publisher
Branka Kalenić Ramšak, dekanja Filozofske fakultete

Upravnik — Editorial Secretary
Matej Ogrin

Naročila – Orders
Oddelek za geografijo, Filozofska fakulteta
Aškerčeva 2, p.p. 580, SI-1001 Ljubljana, Slovenija
e-mail: ogrin.matej@siol.net

Cena — Price
15 €

Fotografija na naslovnici/Cover photo: Kmetija v Hlebcah (I. Potočnik Slavič)