

## MANAGEMENT PROBLEMS OF RURAL DEVELOPMENT IN FRUŠKA GORA<sup>1</sup>

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### Summary

*This paper analyzes the determinants upon which the successful management of the rural development of Fruška gora's area is depended, bearing in mind the presence of national park. The specific characteristic of Fruška gora's area has a multiple influences on the choice of optimal model for rural development. For this purpose, the survey was conducted in 2014. in the area of Fruška gora on a sample of 117 interviewees from this area. Statistical methods are used in order to reach conclusions on the basis of data obtained from survey research. The research results show that in this region dominance of agriculture and tourism is present, with unsatisfactory rural infrastructure. Socioeconomic determinants are key disadvantages affecting the management of rural development of Fruška gora's area. The authors conclude that in the future the management model of rural development of Fruška gora's area should focus on the development of organic agriculture and rural tourism on a sustainable basis together with rural investments.*

**Key words:** *management of rural development, protected areas, area of Fruška gora*

**JEL:** *O18, Q01*

### Introduction

Fruška gora is one of two mountainous areas in the territory of Autonomous Province of Vojvodina (Republic of Serbia) and covers an area of approximately 139,430.01 ha. Within this area, the municipalities Petrovaradin, Sremski Karlovci and Beočin are the settlements

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that are part of Fruška gora with the whole territory. Certain parts of the municipalities Irig, Indija, Šid, Ruma, Bačka Palanka and the city of Sremska Mitrovica are also part of this area. The specificity of this area is the presence of the National Park “Fruška gora”, as a protected natural resource of the first category with a total area of 25.520 ha. Considering that the national park is in the middle of this area, the remaining part of the territory is a protection zone (buffer zone) with about 56,650 hectares of area. The protection zone is considered to be the territory which is located near protected areas where sustainable utilization of natural resources are allowed (Wells et al., 1992). Our legislation defines a protection zone as: “space outside the boundaries of the protected area, the ecologically significant area and/or ecological corridor which can be determined in establishing these areas, in order to prevent or mitigation of external influences or this is an area where it is applied in a selective protection in order to eliminate or reduce the negative impacts and pollution of the environment”. In the literature (Ebregt, de Greve, 2000) the authors highlight the many benefits of buffer zones and the most significant economic improvements are: employment, changes in productivity, introduction of new technologies, creation of income associated with transit movements within the entire protected area (trade, tourism, etc).

The settlements within the area of Fruška gora are mostly rural, except the two municipalities Petrovaradin and Sremski Karlovci that have the attributes of urban communities (Njegovan, Pejanović, 2009; Pejanović, Njegovan, 2011). Fruška gora as rural area is faced with a number of developmental problems, where infrastructural development is crucial to the survival of the population in this area (Njegovan et al., 2011; Đukić, 2014). The demographic characteristics of the area are marked by negative trends whereby the most obvious manifestations are depopulation and senilisation (Pejanović et al., 2012). Fruška goras` region has significant potential for organic production (fruit growing, viticulture, growing vegetables, animal husbandry, beekeeping, fish farming, as well as the cultivation of melliferous and medicinal herbs (Pejanović et al., 2011). Economic revitalization of Fruška gora is based on improving key development potentials of sustainable agriculture and tourism (Đukić, Glavaš-Trbić, 2012; Pejanović et al., 2014).

Spatial plan for area of special purpose of Fruška gora stand out the following economic activities that are represented in this area: agriculture, forestry, tourism, catering industry, mining, trade, craft production, industry, transportation and public utilities. Developmental characteristics of existing activities in the Fruška gora are as follows (Official Gazette of the AP Vojvodina, 2004):

- there is a different level of development of certain economic areas in relation to available resources, the comparative advantages of the area and the real expressed needs;
- there is a concentration of the population, the capacity of industry, trade, service industries and hospitality in the following settlements: Beočin, Sremski Karlovci, Petrovaradin, Šid and Irig, as a result of the existing raw materials basis and favorable conditions for transport links with broader region;
- the use of natural and man-made comparative advantages is incompletely and unevenly, particularly in the field of agriculture (fruit growing, viticulture, animal husbandry), as

well as tourism and catering industry;

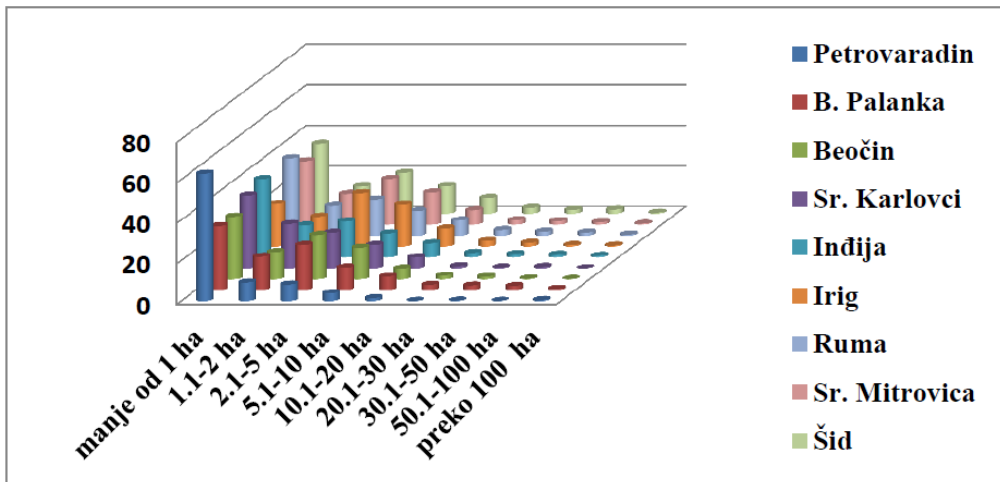
- excluding economic development on the line Sremski Karlovci-Petrovaradin-Beočin-Šid, basically it can be observed that the area has a picture of an under-developed and the monofunctional economy in stagnation;
- agriculture is the dominant economic activity.

In agriculture of Fruška gora there is a small ownership structure (graph 1) and in most settlements that are part of this area the holdings size up to 5 ha are dominant (Đukić, 2015).

This ownership structure could be a limiting factor in the development of agriculture in this area, but in the broader context the small farms may have significant potential. However, there are advantages of small farms:

- they can not have satisfactory financial performance, and at the same time they much less cause environmental degradation (Ellis, Biggs, 2001);
- the existence of potential of small farms as part of the rural development, especially by strengthening non-agricultural economy (Ashley, Maxwell, 2001);
- the future of small farms consisting of the various measures to stimulate the non-farm economy. These measures can also stimulate the development of agriculture through the improvement of the investment climate in rural areas (Wiggins et al., 2010).

**Graph 1.** The structure of agricultural holdings by size of used agricultural area in Fruška gora's area (2012)



Source: authors' calculations based on the Census of Agriculture of the Republic of Serbia in 2012

### Methodology framework, Goal and Purpose of the Research

For the purpose of this research a specific questionnaire was prepared where the issue of rural development of Fruška gora was divided into four parts. The first part of the questionnaire contained questions that define the basic characteristics of the respondents. In the second

part of the questionnaire questions are related to determine the significance of agriculture and non-agricultural activities (with special emphasis on potential forms of tourism) in the rural development of Fruška gora. The third section of the questionnaire is oriented towards determining the state of development of rural infrastructure, as well as the possible benefits which would arise from the growth of infrastructure investments. Finally, the fourth part of the questionnaire contained questions which determine the limits of rural development of Fruška gora.

Questions are close-ended type. Descriptive statistical method was used in order to adjust the survey data (arithmetic mean, median, mode, and standard deviation) and factor analysis was used to determine the key disadvantages of the rural development of Fruška gora. The survey was conducted in 2014 in the area of Fruška gora, which covered 117 interviewees from this area.

The purpose of this study was to determine the priority activities related to rural development of Fruška gora, having in mind that this area is also a protected natural area. This research was aimed at identifying the determinants that are important in the management (Ignjatijevic et al., 2016) of rural development of Fruška gora.

### **Findings and discussion**

The interviewees are divided into specific categories according to socio-demographic structure (table 1). Within this framework, the questions are related to gender, age of interviewees, as well as their affiliation to specific interest groups. In a sample of 117 interviewees female population was higher (53.8%) compared to the male population (46.2%).

In terms of age distribution, the situation is as follows: the largest number of interviewees (55.6%) belongs to the population between 31 and 50, while the smallest number of interviewees are in the age group over 70 years (1.7%).

The interviewees had the possibility of expression in terms of belonging to certain groups (for their professional preferences):

- municipal/city administrations;
- regional organizations;
- the media
- academic institutions;
- non government organizations;
- financial organizations;
- public companies;
- private sector (industry);
- private sector (service industries);

- private sector (agriculture, hunting, forestry, fishery, water management);
- other (within this group are included interviewees who declared themselves as students and pensioners).

**Table 1.** Socio-demographic structure of interviewees

Variables	Frequency	%
<b><i>Interest group</i></b>		
municipal/city administrations	8	6.8
regional organizations	3	2.6
the media	1	0.9
academic institutions	0	0
non government organizations	5	4.3
financial organizations	6	5.1
public companies	9	7.7
private sector (industry)	7	6.0
private sector (service industries)	39	33.3
private sector (agriculture, hunting, forestry, fishery, water management)	32	27.4
other	7	6.0
<b><i>Gender</i></b>		
female	63	53.8
male	54	46.2
<b><i>Age</i></b>		
18-30	21	17.9
31-40	34	29.1
41-50	31	26.5
51-60	22	18.8
61-70	7	6.0
over 70	2	1.7
Total	117	100.0

Source: Author's calculation based on the survey data

The majority of the interviewees are persons engaged in the service industry (about 33.3%) and after them are the interviewees who are engaged in agriculture, hunting, forestry, fishery and water management (27.4%). Other categories of interest groups are represented in the range of 0.9 to 7.7%.

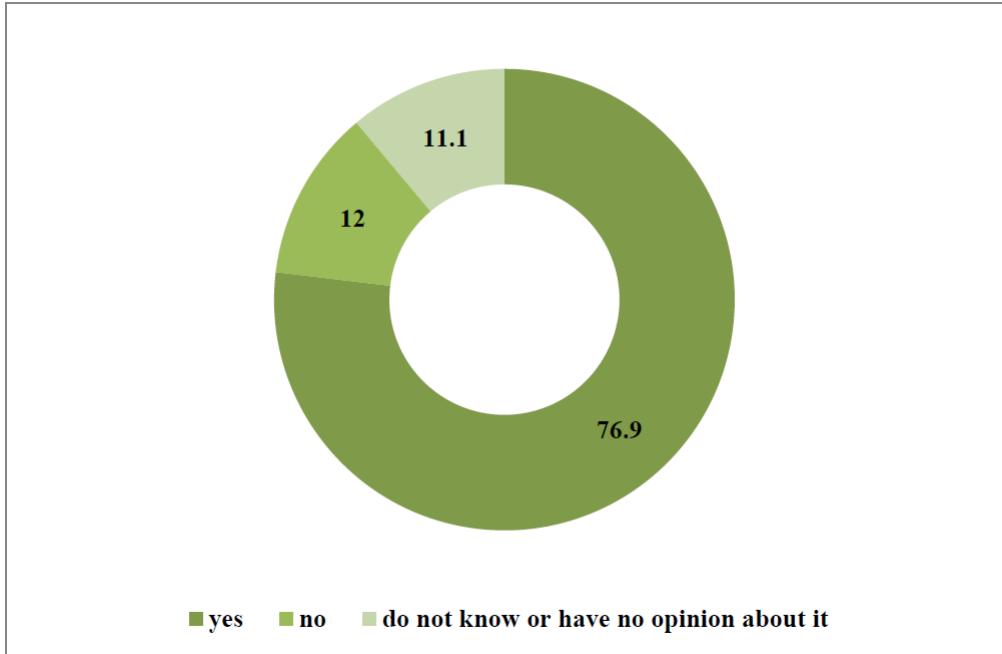
**Table 2.** The importance of certain economic activities within the rural development of area of Fruška gora

Variables	Frequency	%
<i>The most important economic activity</i>		
agriculture, hunting, forestry, fishery and water management	53	45.3
tourism	54	46.2
industry	3	2.6
other service activities	6	5.1
do not know or have no opinion about it	1	0.9
Total	117	100.0

Source: Author's calculation based on the survey data

The majority of the interviewees evaluated tourism (46.2%) and agriculture (45.3%) as key economic activities in area of Fruška gora (table 2). This attitude of the interviewees was expected, bearing in mind the presence of: a) long-term crisis of Serbian agriculture, b) the global financial crisis. Namely, the Serbian agriculture, which has long been in the unfavorable economic situation, is especially affected by the global financial crisis (Pejanović, 2010). It should be kept in mind that agricultural land occupies approximately 70% of the total area of Fruška gora, that objectively indicate the significant role of agriculture than the results of the survey (Official Gazette of AP Vojvodina, 2004). Considering that Fruška gora is protected area, it was presumed that organic farming is optimal choice that meets all aspects of sustainable development. In this framework, a significant number of interviewees (table 3) identified that organic agriculture is the most optimal choice for the area of Fruška gora (about 47.9%). Considering that the participation of those who gave negative and indifferent attitude collectively larger with respect to the application of organic agriculture in the area of Fruška gora (52.1%), this indicates that interviewees either have a certain resistance in the sense of changing the model of agricultural production, or are not sufficiently aware of the benefits of organic production model. Considering that small farms are typical for this area, the majority of interviewees (76.9%) agreed with the statement that successful rural development of Fruška gora involves improving agricultural production, as well as providing additional sources of income from non-agricultural activities (graph 2).

**Graph 2.** The interdependence of rural development and improving agricultural production and non-agricultural activities in the area of Fruška gora



Source: Author's calculation based on the survey data

**Table 3.** Organic agriculture as the optimal choice of agricultural production in the area of Fruška gora

Variables	Options	Frequency	%
Organic agriculture is the most suitable choice for the area of Fruška gora	yes	56	47.9
	no	39	33.3
	do not know or have no opinion about it	22	18.8

Source: Author's calculation based on the survey data

Non-agricultural activities which interviewees most valued in terms of the existence of potentials for further development are tourism, forestry, processing of fruits and vegetables, catering industry (where the average value in the range of 3.22 to 3.44, the value of mode for all variables is 4, and the standard deviation is less than 1 which indicates the high level of agreement among the interviewees). Civil engineering, energy, mining, industry are economic activities which in the opinion of the interviewees do not have any significant development potentials (table 4).

**Table 4.** The potential of development of non-agricultural activities in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Processing of Fruits and Vegetables	3.41	4.00	4.00	0.767
Processing of Milk and Meat	2.74	3.00	3.00	1.070
Forestry	3.44	4.00	4.00	0.814
Water Management	2.54	3.00	3.00	1.087
Production of Renewable Energy	2.57	3.00	3.00	1.140
Tourism	3.60	4.00	4.00	0.732
Traditional Crafting	2.81	3.00	Multiple	1.159
Trade	2.50	3.00	3.00	1.149
Catering Industry	3.22	3.00	4.00	0.975
Other Industrial Activities	1.94	2.00	1.00	1.003
Other Service Activities	2.56	3.00	3.00	1.102
Transport and Communications	2.45	3.00	3.00	1.082
Mining and Energy	2.03	2.00	1.00	1.062
Civil Engineering	1.83	1.00	1.00	1.036

Source: Author's calculation based on the survey data

Considering that tourism is one of the most important economic activities in the area of Fruška gora, the importance of certain forms of rural tourism was analyzed. According to opinion of the interviewees, the greatest development potentials have the following forms of rural tourism: wine tourism, agritourism, religious tourism, cultural tourism, and sports and recreational tourism (for these variables mean value is in the range of 3.36 to 3.44, a value mode for all variables is 4). The survey results indicate that hunting tourism, spa tourism, manifestation tourism and ecotourism have mediocre development potentials, while fishing tourism, geotourism and gastronomy tourism have the least development potentials. In most of these variables the standard deviation is less than one, it can be noted that there is a high degree of agreement among interviewees on this issue (table 5).

**Table 5.** Development potentials of certain forms of tourism in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Agritourism	3.35	3.00	3.00	0.735
Wine Tourism	3.44	4.00	4.00	0.803
Hunting Tourism	3.21	4.00	4.00	1.022
Spa Tourism	3.17	3.00	4.00	0.959
Fishing Tourism	2.70	3.00	3.00	1.069
Ecotourism	3.14	3.00	3.00	0.890
Geotourism	2.75	3.00	3.00	0.991
Sports and Recreational Tourism	3.36	4.00	4.00	0.845



Variables	Mean	Mediana	Mode	Standard deviation
Cultural Tourism	3.38	4.00	4.00	0.935
Religious Tourism	3.40	4.00	4.00	0.799
Gastronomic Tourism	2.93	3.00	3.00	1.006
Manifestation Tourism	3.07	3.00	3.00	0.917

Source: Author's calculation based on the survey data

**Table 6.** Development of rural infrastructure in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Supply of Electricity	3.13	3.00	3.00	0.896
Supply of Gas	2.60	3.00	3.00	1.034
Traffic and Transport Capacity	2.68	3.00	3.00	1.105
Utility Services	2.64	3.00	3.00	1.118
Telecommunications	3.15	3.00	3.00	0.925
Schools	2.98	3.00	3.00	0.999
Health Care	2.91	3.00	3.00	1.034
Postal Services	3.00	3.00	3.00	0.974
Social Protection System <sup>1</sup>	2.33	3.00	3.00	1.114
Market Institutions	2.71	3.00	3.00	1.153

Source: Author's calculation based on the survey data

A key precondition for the successful development of agriculture and other activities is the provision of adequate rural infrastructure (table 6). Supply of telecommunications and electricity, and the provision of postal services according to the opinion of interviewees are most developed in the area of Fruška gora (the mean value for these is in the range of 3.00-3.15, and a high degree of agreement has been confirmed the value of the standard deviation, which is less than 1). Supplies of gas, as well as the availability of traffic and transport and utility services are estimated as the worst. Closely related to the theme of rural infrastructure is the issue of rural investments. Research in this case showed that respondents believe that the greater volume of infrastructure investments have the most significant effect on the growth of incomes of the population, where the mean value is 3.34, and mode value is 5 (table 7).

**Table 7.** The benefits of future investments in rural infrastructure in the area of Fruška gora

Variables	Mean	Mediana	Mode	Standard deviation
Reducing unemployment	3.03	3.00	1	1.523
The increase in economic activity	3.12	3.00	2	1.384
Better market access	2.77	3.00	3	1.354
Reduction of transport (and other) cost	2.74	3.00	2	1.288
Income growth of population	3.34	4.00	5	1.451

Source: Author's calculation based on the survey data

**Table 8.** Limitations of rural development of Fruška gora's area

Variables	Mean	Mediana	Mode	Standard deviation
Low population density	2.93	3.00	3.00	0.935
Unfavorable age structure <sup>2</sup>	3.13	3.00	3.00	0.826
The departure of the young population from the countryside	3.52	4.00	4.00	0.738
Unfavourable educational structure of the population	3.12	3.00	3.00	0.948
Unplanned land use	3.21	3.00	4.00	0.915
The dominance of agriculture	2.59	3.00	3.00	1.035
Fragmentation of the estates in agriculture	2.77	3.00	3.00	1.003
The lack of self-organization of farmers	3.19	3.00	4.00	0.955
The high unemployment rate	3.44	4.00	4.00	0.904
Further employment reduction	3.38	4.00	4.00	0.839
Insufficient development of small and medium-sized enterprises in all sectors	3.37	4.00	4.00	0.970
Low living standard	3.45	4.00	4.00	0.846
The poor state of rural infrastructure	3.51	4.00	4.00	0.761

Source: Author's calculation based on the survey data

Finally, among a number of variables, the interviewees emphasized the most problematic limitations of further rural development of Fruška gora's area: the departure of the young population from the countryside, the poor state of rural infrastructure, the low living standard, high unemployment rate and a further rise in unemployment, and the insufficient development of small and medium-sized enterprises in all sectors (for the observed variables mean value is in the range of 3.45 to 3.52, and mode value for all variables is 4). Limitations with the lowest negative impacts are: the dominance of agriculture, low population density, and fragmentation of the estates in agriculture. Limitations with the mediocre impacts on rural development in the area of Fruška gora are: unfavorable age and educational structure of the population, unplanned land use (such as the converting agricultural into non-agricultural land), and lack of self-organization of farmers (table 8).

In order to perform data reduction and the identification of main limitations in the rural development of Fruška gora's area the factor analysis was applied with principal components with Oblimin rotation. In this context, there are two factors that explain the variables. The first factor explains the group of seven variables with sufficient saturation. These are the variables related to unemployment and rural infrastructure (The high unemployment rate, Further employment reduction, Insufficient development of small and medium-sized enterprises in all sectors, The poor state of rural infrastructure. ...). The second factor explains the group of six variables with sufficient saturation. In the context of the second factors are most pronounced two variables related to the structure of the population: The unfavorable age structure of the population and Unfavourable educational structure of the population (table 9).

**Table 9.** Factor matrix for separate variables in the analysis of limitations of rural development in the area of Fruška gora

Factor matrix		
Variables	Components	
	1	2
Further employment reduction	.775	.124
The high unemployment rate	.764	.109
Insufficient development of small and medium-sized enterprises in all sectors	.712	
The poor state of rural infrastructure	.704	.254
Low living standard	.685	.395
The lack of self-organization of farmers	.416	
Unplanned land use	.415	.244
Unfavorable age structure		.753
Unfavourable educational structure of the population	.363	.634
The departure of the young population from the countryside	.366	.595
The dominance of agriculture	.154	.554
Low population density		.533
Fragmentation of the estates in agriculture	.176	.381

Source: Author's calculation based on the survey data

Therefore, the key limitations of rural development of Fruška gora's area are socio-economic factors (unemployment, rural infrastructure and demographic trends).

### Conclusions

Management of the rural development requires a comprehensive analysis of existing resources of any rural area. In the case of Fruška gora's area, a specific feature is the interdependence between the rural development and the protection of resources in this area. In the context of key branches of the economy, this area is determined by the development of agriculture and rural tourism on a sustainable basis. Although organic farming is not significantly represented in this area, it is still recognized as the best choice for Fruška gora's area. Except for rural tourism, other non-agricultural activities that have development potentials are: Forestry, Catering Industry and Processing industry (Processing of Fruits and Vegetables). Except these advantages, there are many limiting factors of the rural development of this area, as the poor state of rural infrastructure, unfavorable business structure (small number of SME), low living standard, unfavorable demographic indicators (age structure and education) of the population, as well as problems in the labor market. This limitations (determinants) have a tendency to slow down the further development of this rural area. For overcoming these limitations the comprehensive rural investments are required, according to the interviewees the expected effects of new investments are related to improving employment levels, increased economic activities and the growth of income.

Finally, based on the identification of key determinants relating to the management (Zekic,

Kolarski, 2015) of rural development of Fruška gora's area, the authors propose the following priority actions:

- encouragement of innovation and knowledge transfer in agriculture, through the promotion and certification of organic agriculture model;
- encouraging the development of tourism (wine tourism, agritourism, religious tourism, cultural tourism, and sports and recreational tourism);
- encouragement of sustainable rural development, with the simultaneous development of other non-agricultural activities;
- strengthening the recognition and positioning in the market through the provision of product labels with protected geographical origin;
- providing the economic development, reduce social exclusion and poverty, through the continuous placement of rural investments.

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## PROBLEMI UPRAVLJANJA RURALNIM RAZVOJEM U PODRUČJU FRUŠKE GORE<sup>5</sup>

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### Apstrakt

*U radu se analiziraju determinante od kojih zavisi uspešno upravljanje ruralnim razvojem područja Fruške gore, imajući u vidu prisustvo nacionalnog parka. Ovo specifično obeležje područja Fruške gore višestruko utiče na izbor optimalnog modela ruralnog razvoja ovog područja. U tu svrhu je sprovedeno anketno istraživanje na području Fruške gore, u kojem je učestvovalo 117 ispitanika sa tog područja tokom 2014. godine. U radu su korišćene statističke metode u cilju donošenja zaključaka na osnovu dobijenih podataka iz anketnog istraživanja. Rezultati istraživanja pokazuju da je na ovom području prisutna dominantnost poljoprivrede i turizma u okviru ruralnog razvoja Fruške gore, sa nezadovoljavajućom ruralnom infrastrukturom. Socioekonomske determinante su ključni nedostaci koji utiču na upravljanje ruralnim razvojem područja Fruške gore. Autori zaključuju da u budućem modelu upravljanja ruralnim razvojem područja Fruške gore treba planirati razvoj organske poljoprivrede i ruralnog turizma na održivim osnovama, praćen investijama.*

**Ključne reči:** *upravljanje ruralnim razvojem, zaštićena područja, područje Fruške gore*

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