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ECONOMICS OF AGRICULTURE

CONTENT

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THE ROLE OF HUMAN FACTOR IN THE DEVELOPMENT OF AGRICULTURE IN MONTENEGRO

Žarko Božović[1], Jovan Đurašković[2]

Summary

We have started from the analysis of existing human resources in the paper, from the point of view of regional, qualification and age structure of the active labour force. Basic research method is deduction method, because we start from the general towards special and individual, with the aim to bring human factor and development of agriculture in Montenegro into connection.

With regards to the key role of the human factor in the development of agriculture, a question emerges: is this factor in Montenegro a real opportunity or a constraint? Upon having insight into the existing situation of the human factor, we can conclude that there is an obvious discrepancy between demographic and economic centres. Expressed migration of the population from the north towards the south and from villages to cities brought the development of agricultural production into question. When the human factor engaged in agriculture is concerned, old population and elderly households prevail, which is a serious threat to the development, because depopulation and "senilization" caused abandoning villages, deagrarization and space devastation.

Key words: *Human factor, Migration, Economy, Agriculture, Agrarian policy.*

JEL: *J43*

Introduction

Business efficiency and development of certain activity is conditioned by availability and proper combination of the production factors. Our determinant is that the human factor is the basic factor of the development (Dessler, 2007). Upon reviewing the dynamics and basic qualitative features of the population, we observe other factors of the development of agriculture in Montenegro as well. It is about natural conditions, supply of land, agricultural households,

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orchards and livestock, and also institutional frameworks where the agriculture is developed. It is necessary to determine achieved level of development, and based on that, to review possible directions of the development of agriculture and rural areas in Montenegro. While reviewing future directions, we primarily start from activities of Montenegro in integration processes of joining the European Union, which significantly defines the frame of the future development and according with that, achieving goals as well. Firstly, it is about sustainable resource management and producing good quality, healthy and safe food, providing quality standard for the population in rural areas, increasing competitiveness in food production at national and international market (Ministry of Agriculture, Water Management and Forestry, 2007).

In the context of reviewing the above title, we will take into consideration the significance of the village and agriculture for employing population in the conditions of the economic crisis.

Montenegrin population as a factor of agriculture development

Decisive determinant assumes that human factors are the basis of the economic development. In order to test this hypothesis, it is necessary to determine the human resources quality available in Montenegro and whether they are properly used. Population is the foundation, the base of the development of human factors (human resources), so it is necessary to analyse the dynamics and the basic structure of the population (Wren and Voich, 1994).

As a result of population growth and the mechanical movement (migrations) there are about 620,000 people in Montenegro (this is a permanent population, according to Census 2011, without persons working abroad). Without going into further analysis, we can conclude that the dynamics and achieved level of the population is primarily the result of decreasing birth rate and reduced mortality with which Montenegro reaches low natality areas. Migration processes also had a strong reflection of the population. We could notice population movement, i.e. migrations from the northern areas towards the central and southern part of Montenegro. This analysis highlights the obvious fact about migrations of professional and highly skilled human resources from Montenegro. These processes were especially triggered by economic and political events, starting from 1990's. The brain drain is not only the reduction, i.e. depletion of human resources base, but also a permanent loss of significant resources invested in education of the "finished" product. There is no doubt that the current crisis will influence the increase of drain of above mentioned category of the human resources, primarily because there is no clear national policy and strategy in this area. The decrease in birth rate which was caused by economic factors (unemployment) like getting married later, families with one or two children or reducing the number of household members are evidence of further decrease in natality. On the other hand, there is no official active population policy which would stimulate employment and increase of the members of households.

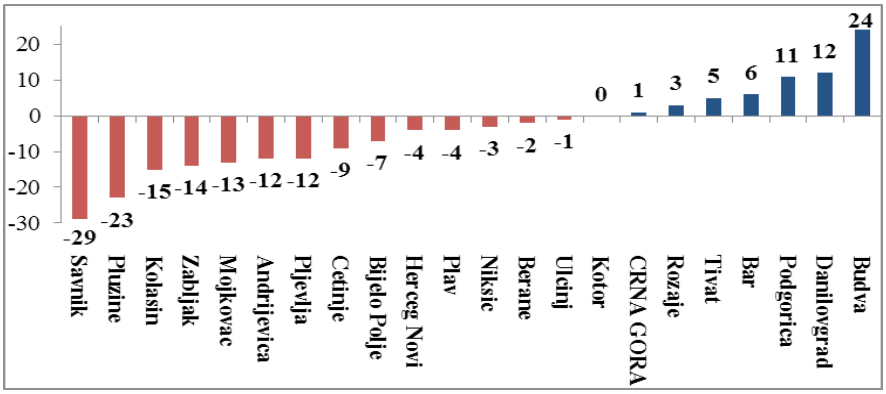
The results of the last census show unbalanced distribution of the population in municipalities and regions of Montenegro and discrepancy of economic and demographic focus. Twelve municipalities in Montenegro have decrease in population in 2011 with regards to 2003, not to mention settlements which were left without inhabitants. These are municipalities in the north

and with municipality Cetinje in the central region of the country. Decrease in population in the northern area in Montenegro and increase in the central and southern part is the result of the migration within the country.

Absolutely, the number of inhabitants in Montenegro rose with regards to 2003 for 7762 inhabitants, whereas the population of the northern area has negative growth rate of 7.2%, increase of population in the central part is 5.8% and it is 3.7% by the coast. There are 185,937 inhabitants in Podgorica only, which is almost 30% of total population. We are witnessing therefore, a universal "Podgorization" of Montenegro, both in terms of demographic and migration trends, and cause and effect in terms of investment and overall economic trends.

The following graph is illustrates comparative review or raise/fall of population in municipalities in 2011 with regards to 2003 and it is expressed in percentage.

Graph 1. Decrease or increase in population by municipalities in 2011 compared to 2003 year (in %)



Source: Monstat, 2012.

Thus, as it was obvious, the biggest fall in population was recorded in the municipalities in the north of the country, whereas the growth of population was recorded in the southern and central regions (primarily in Podgorica and its vicinity).

After considering the movement of total number of population, we also observe basic elements and point to interdependence of dynamics and basic structures of the population. It is primarily about the gender and age structure. The results of the last census and the previous ones as well show a certain excess of female compared to male population, both on the national level and the municipalities.

Since the age structure is an index of quality of human factor, we also point out to the tendency of population aging, with obvious regional differences. It is about decreasing share of the young population, increasing share of middle aged population, and especially the old population over 60 years of age i.e. 65 years.

Table 1. Age structure of Montenegrin population (%)

Year	Total	up to 20 years	21-30	31-40	45-59	60 years and more
1961	100	44.5	17.7	12.3	15.1	13.4
1971	100	42.8	14.9	14.2	17.7	11.1
1981	100	37.3	17.8	12.4	21.5	11.0
1991	100	33.6	15.9	15.0	21.9	13.6
2003	100	28.6	15.2	13.4	18.2	16.6
2011	100	26.3	14.3	13.9	20.6	18.3

Source: Monstat, 2012.

In an analysis of the age of the population, the sixties of the last century can be characterized as the beginning of undesirable trends in the age structure of population, which is growing, whether it is about reducing the proportion of young people and increasing the relative share of the older population. In addition to this indicator, the tendency of aging of the population and level of "old age" illustrates that the average age tends to increase the apparent difference in municipalities and regions (UNDP, 2013).

Table 2. Average age of the population in municipalities, 2011.

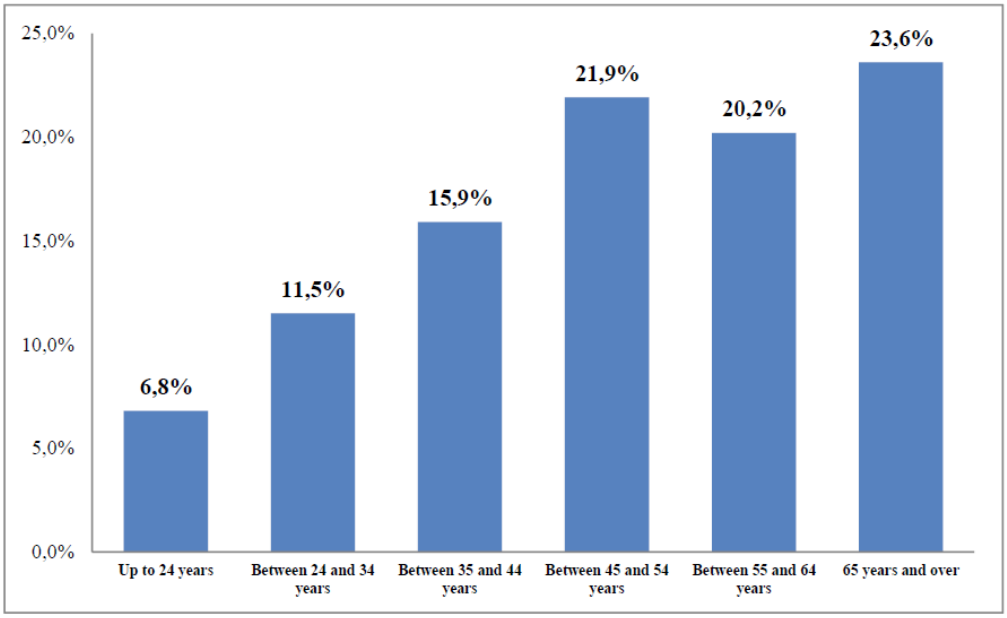
Municipalities	Average age of the population		
	Total	Urban	Other
Montenegro	*37.2*	*36.6*	*38.4*
Pluzine	43.7	38.2	47.5
Savnik	42.5	37.9	43.9
Zabljak	41.9	40.5	43.3
Pljevlja	41.8	39	46.6
Cetinje	40.3	39	47.2
Kolasin	40.1	37.6	41.3
Herceg Novi	40	40.1	39.7
Andrijevica	39.9	38.1	40.3
Kotor	39.5	39.8	39.1
Mojkovac	38.4	37.4	39.1
Danilovgrad	38.1	36.6	39.1
Tivat	38	38.3	37.3
Bar	37.9	37.8	37.9
Niksic	37.8	37.1	40.2
Ulcinj	37.8	36.8	38.8
Budva	36.5	36.5	36.7
Berane	36.4	36.9	36.1
Bijelo Polje	36.1	35.1	37.1
Plav	36	35.6	36.2
Podgorica	35.7	35.3	37.5
Rozaje	31.7	32.2	31.3

Source: Monstat, 2012.

Across regions, the average age of the population is the largest in the north of Montenegro, apart from Rozaje. There are also significant differences in the relation city population and other settlements. City population is a bit younger, which is a result of migrations, whereas in other settlements of primarily rural type - the population age shows the influence of a range of factors, demographic and economic, which brought to senilization, rural depopulation, deagrarization and area devastation.

The full picture of human resource quality in Montenegrin agriculture is illustrated in the graph 2.

Graph 2. Total labour force by age



Source: Monstat, 2012.

When the human factor engaged in agriculture is concerned, old population and elderly households prevail, which is a serious threat to the development. On the total 48,824 holders of family agricultural holdings, the most of holders (16,228) are aged 65 years and over, with the share of 33.24% (Monstat, 2011b).

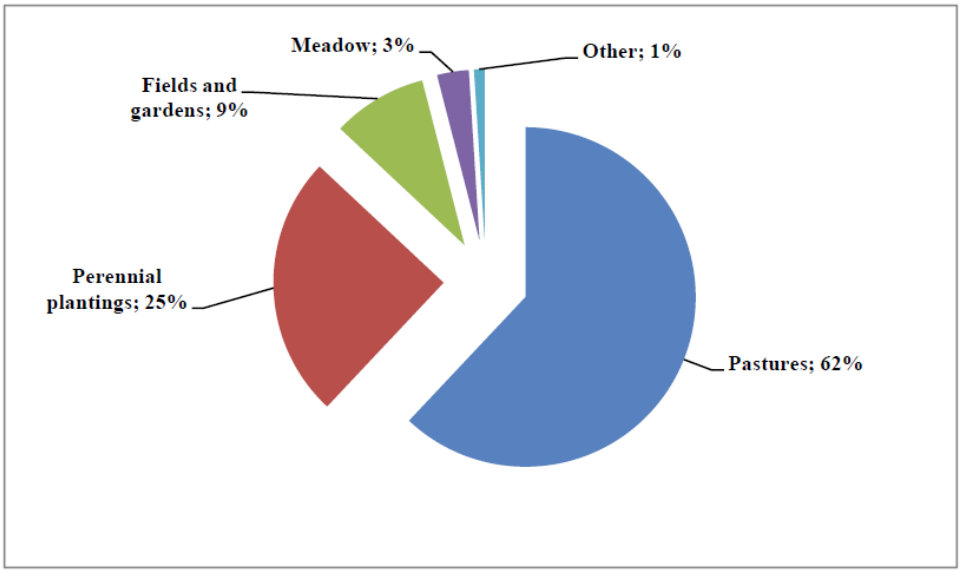
Achieved level of development of agriculture in Montenegro

Previously processed demographic development undoubtedly has a strong influence on the development of agriculture and rural parts of Montenegro, and primarily negative migration balance i.e. abandoning certain areas (in the northern and central parts) i.e. depopulation and demographic aging of population in villages. Significance of agriculture in socio-economic development is not only measured by direct effects (contribution in GDP with around 11%), but also with indirect effects which are being valorised in other activities, especially in tourism and catering, sustainable development and employment.

Apart from population as the basic factor of the development of agriculture, other factors also play an important role, especially natural conditions (climate, soil etc.) as well as funds (funds of crop production, livestock production, etc.).

Agricultural land is the basic fixed capital in agriculture, and it comprises around 518ha or relatively 0.84 ha per capita. This resource takes part with 38% in total area of Montenegro, which is very important, especially if we take into account agricultural land per capita. On the other hand, the structure of this fund is unfavourable and represents an index of unreasonable usage of this important resource. Its structure can be viewed from the following review.

Graph 3. Structure of agricultural land of Montenegro



Source: Monstat, 2011a.

It is obvious that the participation of pastures prevails with over 60% and they are not used enough, and as a consequence the total production potential is not enough used as well. If we consider the fact that the agricultural production is taking place within 48,824 agricultural households, whereas only 46 subjects of agricultural production, we undoubtedly have a big number of households with small potentials, i.e. scattered homesteads which excludes rational production, especially with regards to the volume of economy. On the other hand, these households grow various crops and livestock.

As we have already pointed out, apart from the basic capital in agriculture, we should show one-year and perennial crops in viticulture and fruit production, and by the virtue of that production of grapes and wine, which is based on the quantity of over 10 million grapevines. Agriculture has already achieved remarkable results in this area because wine is recognized as a brand, and when Montenegro joins the European Union, it will create conditions for bigger production, more significant export and product quality.

Product export will contribute to reduction of deficit of balance of payments and general import dependence.

Within crop production, we should mention tobacco production and its sale at the foreign market, then vegetable production, especially in the protected space which enables bigger productivity and in that way the competitiveness at the national and international market. Potato production also marks the increase, whereas the production of grains and fodder crops is negligible.

With regards to stock breeding, we have to point out that the livestock is significantly reducing, apart from swine, whereas the number of sheep is drastically dropping (from inventory to inventory), which is in the direct connection with expressed migration of the population and its aging, and with already determined discrepancies between natural potentials and human factor. It is certain that this trend is caused by decades-long, we can even say stepmother's attitude towards the village and agriculture and the absence of developmental agrarian policy.

The condition of the supply of land in the agriculture of Montenegro (unfavourable structure), a big number of small individual agricultural (old) households and unfavourable tendencies in production show that Montenegro does not use its products enough. Potentially, it is about serious obstacles in further development, better to say limitations, especially on the way towards the European integrations. Still, we should look for chances in creating future directions of the development of agricultural production in favourable institutional frameworks, in budget support by the state of Montenegro and European Union funds. We should count on reducing import dependence in the future period, because Montenegro is net importer of agricultural products which is shown by the high deficit of almost 30%.

Possible directions of the development of agriculture of Montenegro

Analysis of the dynamics and structure of the human factor, natural factors, institutional framework, create a real basics for reviewing future directions of the development of agriculture in Montenegro. Namely, each prediction has to be real with certain dose of optimistic scenario. Due to accepted internal and external, economic and technical factors, our assumption is that there are real conditions for increasing agricultural production based upon modernization and generally development of rural areas. Development of agriculture is the priority of the developmental policy of Montenegro. Increasing production and strengthening its market attributes are expected in crop production (fruit, wine, potatoes, vegetables, tobacco and olives) and stock breeding (milk, dairy products, meat). In order to achieve this goal, we need budget support and the support from international funds to raise the product quality and creating conditions for working and living in villages. Without motivation of agricultural producers, especially the young ones, there is no increased agricultural production, or good quality products, i.e. satisfying the customers' needs. It is about a feedback loop: motivation of the human factor – good quality product – satisfied consumer and producer (Marusic, 2006). These are basic assumptions for joining the European Union and using EU funds, when it is necessary to work on constant education of human resources who are agricultural professions and agricultural producers in general.

The certainty of realization of the above mentioned directions of development depends largely on the skill and the intensification of work on weaknesses manifested in their work so far, and that is primarily: non-competitive price of agricultural products, low level of mechanization, the irrationality of agricultural production due to high cost of inputs, low level of market sales, unsatisfactory level of quality standards, inadequate structure and poor infrastructure in rural areas. On the other side, it is necessary to intensify activities towards strengthening advantages that agricultural production in Montenegro has. In that sense, we have to support employing people in the agricultural sector, which has always been an absorber in reducing the unemployment, especially in the periods of crisis. We are encouraged by the information (Ministry of Agriculture) that around 450 new jobs have been opened in this sector.

Institutions that deal with the development of agriculture play an important role in the plan of technological development, modernization of agricultural production and achieving the goals from the Strategy of the development of agriculture. We primarily think of the Ministry of Agriculture and its role in the framework of agrarian policy and its implementation. Then, there is veterinarian service which is in charge of health protection, breeding and animal trade. Also, professional help of these institutions is needed on-site, especially in the area of education and organization of profitable agricultural production. The role of professionals is irreplaceable in the development of agriculture as an industry.

Conclusion

Previous review of the situation and future directions of the development of agriculture in Montenegro undoubtedly imposes a conclusion that agriculture and rural development are priority directions of this area. It is so especially if we take into account its multiple effects on other activities, above all on tourism and catering, and also on the employment and broader social-economic development.

Secondly, human factor is the key development factor, whether we talk about total population or population which is active in agriculture, and also professional, highly professional and academic staff. Upon having insight into the existing situation of the human factor, we can conclude that there is an obvious discrepancy between demographic and economic centres. Expressed migration of the population from the north towards the south and from villages to cities brought the development of agricultural production into question. When the human factor engaged in agriculture is concerned, old population and elderly households prevail, which is a serious threat to the development, because depopulation and "senilization" caused abandoning villages, deagrarization and space devastation.

For sure, basic assumption is creating basic postulate of management of human resource - "right person at the right place". Age structure of the population and its insufficient spatial distribution, with discrepancy between demographic centres and other resources is a limitation for the development of agriculture in Montenegro.

The chances of development of agriculture and rural areas in Montenegro can be seen in: quality crop and livestock production, i.e. healthy and good quality food; bigger marketing orientated production with competitive prices at the national and international market; active agrarian policy which will be stimulant for agricultural producers, especially young people, and this will contribute to increased production and reducing the unemployment.

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Original scientific paper
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UDC: 634.8 CABERNET SAUVIGNON

THE EFFECT OF DIFFERENT POSITION OF GRAPE CLUSTERS ON THE BEARING SHOOT ON PRODUCTION RESULTS OF CABERNET SAUVIGNON CLONES

Ana Čoloveić[1], Dragoljub Žunić[2], Ivana Ljubanović Ralević[3], Branka Kalanović Bulatović[4], Mirjana Lukač Bulatović[5]

Summary

In this paper the differences were examined between clones of Cabernet sauvignon (clones ISV-F-V5, ISV-F-V6 and R5), i.e. the difference between uvological properties of grape clusters and grape berries, based on the different positions on the bearing shoot. Tests were conducted at the experimental field of the Faculty of Agriculture "Radmilovac." Standard ampelographic methods were used in numerous analyses of grape yield, as well as uvological properties of clones. All data were statistically analyzed and processed by the method of two-factor analysis of variance with repeated measuring of one factor (height) and Tukey HSD test. Analysis of variance showed no significant differences between clones. The best results were achieved with grape clusters positioned in the base of bearing shoot. The first positioned grape clusters on the bearing shoot had the highest share in the total grape yield, the highest amount of sugar, and the highest positioned grape clusters had higher content of total acids. The differences determined between examined clones were in regard to productivity and quality of grapes which reflected also on production value.

Key words: *Cabernet sauvignon, clones, positions on the bearing shoot, uvological properties of grapes, production results.*

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Introduction

Cabernet sauvignon is one of the best and most common varieties in the world. The interest for it in Serbia is very large because it is intended for the production of quality red wines. It is a very old variety originating from France, prone to many variations and mutations. Prolonged vegetative reproduction of this species contributes to its degradation in terms of positive qualities. For these reasons, most research centers in France, Italy, Hungary and other countries, conduct clonal selection (Avramov et al., 2001). The aim of clonal selection is to purify a variety in order to obtain clones that retain all the features of the original plant species, and some clones even exceed the variety population in certain features, especially in terms of increased resistance to downy mildew, powdery mildew and gray rot (Rühl et al., 2004). Cabernet sauvignon is the most commonly grown variety in conditions of frequent rainfall and high relative air humidity, due to greater resistance to gray mold of grapes (Nakalamić et al., 2009). In such conditions, it accumulates 20-24% of sugars and 5.5 to 8.0 g/l of total acids, with the average yield, and wines contain 12-24% alcohol and 5-7 g/l of total acids. The wine is very smooth, of harmonious taste/aroma and a characteristic odor resembling a forest violet (Žunić, 2009). Hence, this variety is considered one of the highest quality wine varieties, and given the resistance to low temperatures it can be successfully grown in the continental conditions.

Material and Methods

The tests were conducted at the experimental field of the Faculty of Agriculture "Radmilovac." Experimental vineyard was built in 2003, and it includes growing grapes in rows with formed Double Guyot training system. Spacing is 3m between rows and 1 m between vines in the row. The direction of rows is North-East- South-West. The tests were performed using standard ampelo-technical methods in laboratory and field conditions. The tested clones were planted on the same plot. They were grafted on different basis of clones SO4 (clone ISV-F-V5 grafted on SO4 clone 310P, ISV-F-V6 grafted on SO4 clone 102 and R5 grafted on SO4 clone 74). Ten (10) experimental vines of each clone were selected randomly. The indicators of the growth potential of clones were determined: the number of productive bearing shoots and the number of grape clusters per vine. At the time of harvest, the number of grape clusters per vine was determined, also, yield per vine and average grape cluster mass. Uvological properties were determined by standard methods, the structure of grape cluster and grape berry was determined, and the quality of grape must as one of the technological characteristics. Mechanical composition of grape cluster and berry was determined according to the method by Prostoserdov (1946). Sugar content of grape must was analyzed using the Oechsle tester - apparatus for measuring the density of grape must and total acid content was determined by method of titration using n/4 NAOH solution. To check the significance of differences between the clones and positions of grape clusters on the bearing shoot, the method of two-factor analysis of variance with repeated measures of one factor (height) and Tukey HSD test were applied. Based on the results obtained from the experiments, the calculation of the regular maintenance of vineyards was performed, which was the basis for making business decisions. Considering that investments in

vineyards represent long-term investments that their character determines the degree of risk and uncertainty with a constant problem of providing the funds needed, the mathematical model is presented which should give an answer to the question of economically justified financial investment.

Results and Discussion

The results of the study of the yield capacity of ISV-F-V5, ISV-F-V6 and R5clones of Cabernet sauvignon variety are expressed as the number of productive shoots and the number of grape clusters of different positions on the bearing shoot (Table 1). In all tested clones the same tendency was revealed. Bearing/productive shoots usually had 1-2 grape clusters, while a smaller number of bearing/productive shoots had 3 clusters. Clone ISV-F-V5 had the largest number of shoots (7.2), but the clone ISV-F-V6 had the largest number of clusters per vine (22.4). Clone ISV-F-V6 had the highest number of second and third grape clusters per bearing shoot.

Table 1. Average number of bearing/productive shoots and grape clusters per bearing shoot

Clone	Average number of bearing shoots per vine	Average number of grape clusters per bearing shoot			Total grape clusters per vine
		first (base)	second (middle)	third (top)	
ISV-F-V5	7.2	10.8	5.7	3.2	16.7
ISV-F-V6	6.7	12.0	6.7	3.7	22.4
R5	5.2	7.5	5.8	2.3	15.7

The present investigation has confirmed the results of other authors stating that clone ISV-F-V6 in different environmental, ecological conditions has a very good yield that exceeds the population of the variety (Golino et al., 2008). In regard to the average grape cluster mass, it was established that the R5 clone had higher mass of grape clusters in the base and middle of shoot compared to the other clones. Also, the third grape cluster (top) of this clone had the lowest weight (Table 2).

Table 2. Average mass of grape cluster

Clone	Average mass of grape cluster (gr)			Average yield of grape cluster per vine (kg)			Total
	base	middle	top	base	middle	top	
ISV-F-V5	98.1[a]	96.4[a]	36.0[b]	1.059	0.549	0.115	1.723
ISV-F-V6	100.5[a]	85.9[a]	42.2[b]	1.184	0.575	0.156	1.915
R5	103.4[a]	109.6[a]	22.1[b]	0.785	0.636	0.050	1.471

[a-b] values marked with different letters in superscript are statistically highly significant.

The differences in yield per vine between the base and the top of all 10 tested vines were following: in clone ISV-F-V5-9.44 kg, ISV-F-V6-10.28 kg and 7.35 kg for R5. Slightly smaller differences were established between the middle and top: 4.34 kg for clone ISV-F-V5, 4.19 kg for clone ISV-F-V6 and 5.86 kg for the R5 clone.

According to the literature data (Milosavljević, 1998), (Cindrić et al., 2000) Cabernet sauvignon gape cluster mass is in the range of 60 to 130 g. The data obtained in the experiment indicated that clones of this variety had quite even ampelo-graphic property such as cluster mass. There was a statistically significant difference in the mass of clusters depending on the position on the bearing shoot. There was no statistically significant difference between the mass of clusters that were positioned at the base and in the middle of the shoots. However, there was a statistically highly significant difference between the masses of clusters that were at the top of the shoot and mass of grape clusters that were located in the base and middle of the shoot.

The highest share in the yield of grapes in all three clones was recorded for the first clusters positioned on the bearing shoot, followed by clusters in the middle of the shoot with a 30% share, and at least clusters from the top of shoots with approx. 3-7% share (Table 3). Grape clusters which are first and second in their position on the shoot bear in average of 94% of the mass of grapes. Considering this information, it is recommended that in the fertile years, the top (highest) grape clusters are thinned first, and then those that are in the middle of the bearing shoots. In this way, the yield is reduced as a part of the plan in order to improve the quality of grapes.

Table 3. Share of grape clusters of different position on the bearing shoot in total yield (%)

Clone	Position of grape clusters on the bearing shoot		
	base	middle	top
ISV-F-V5	61.44	31.86	6.68
ISV-F-V6	61.81	30.03	8.14
R5	53.37	43.17	3.45

For manufacturers it is important to monitor production costs, calculate cost of one kilogram of grapes and find a way to maintain the vineyard profitable as long as possible, and that this does not affect the quality of grapes and wine (Table 4).

Table 4. Cost of regular maintenance of 1ha vineyard

Description of cost	Clone		
	ISV-F-V5	ISV-F-V6	R5
Protection preparations	49,500	49,500	49,500
Labor	56,000	56,000	56,000
Mechanization	39,150	39,150	39,150
Harvest	25,840	28,720	22,070
Total	170,490	173,370	166,720

Source: According authors' calculation.

The purchase price of grapes is 30.00 RSD. On the basis of the realized differences in total yield, expected costs and revenues it can be concluded that the growing of clones ISV-F-V6 is economically most profitable.

When defining the investment model it is assumed that the money in the amount N to would be invested in improving production. Clones are alternatives for investment. Each option after j_i year brings profit of q% annually (i = 1, 2, ..., m). Part of the money available that is not invested brings interest of p% per year. Starting point is the assumption that the profit obtained from certain alternatives is used for further investment in the same alternatives. At the beginning of each year the investment structure should be determined that would provide maximum profit at the end of the year k.

Thus defined, the problem can be described by the following mathematical model:

a) Variables

X_{it} – the amount of money invested into the alternative i during the year t, i = 1, 2,...m; t = 1, 2,...k

U_t – the amount of money invested during the year t with the interest of annual p%, t = 1, 2, ... k

b) Optimization task

To maximize the function to obtain

$$(\max)Z = \sum_{i=1}^{m} I_{it}^{ji} X_{i,k+1-j_i}\left(1+\frac{q_i}{100}\right) + U_k\left(1+\frac{p}{100}\right) \text{ with limitations}$$

$$\sum_{i=1}^{m} X_{it} + U_t = N$$

$$X_{it} \geq N_i, i = 1,2,\ldots m$$

$$\sum_{i=1}^{m} I_{it}^{ji} X_{it} + U_t = \sum_{i=1}^{m} J_{it}^{ji} X_{i,t-ji}\left(1+\frac{q_i}{100}\right) + U_{t-1}\left(1+\frac{p}{100}\right),$$

$$t = 1,2,\ldots,k; U_o = 0$$

$$X_{it} \geq 0, i = 1,2,\ldots,m; t = 1,2,\ldots,k$$

Where I_{it}^{ji} and J_{it}^{ji} variable indicators defined by

$$I_{it}^{ji} = \left\{\begin{matrix} 0, k+1-t \leq j_i \\ 1, k+1-t \geq j_i \end{matrix}\right\}, i = 1,2,\ldots,m; t = 1,2,\ldots,k$$

$$J_{it}^{ji} = \left\{\begin{matrix} 0, t-j_i \leq 0 \\ 1, t-j_i \geq 0 \end{matrix}\right\}, i = 1,2,\ldots,m; t = 1,2,\ldots,k$$

The model can be easily extended to other limitations relating to investments for the establishment of certain clones.

Determination of sugar content in the grape must is performed to assess the quality and determine the time of the grape harvest. The tested clones were suitable for the production of quality wines. In clones of the variety Cabernet sauvignon, as expected, a relatively high sugar content in all categories of clusters of different positions on the bearing shoot was expressed (Table 5). It can be said that in this respect, the clone ISV-F-V6 was in forefront compared to other clones. The total amount of sugar varies depending on the weather conditions during the ripening of grapes, cultural practices/ applied agro-technical practices, or it may be an indicator of adaptability of the variety to the given locality.

The total acid content was unusually high (above 10.0 g/l) which can be justified by somewhat earlier harvest considering that the individual vines were located in the production orchard where the harvest is non-selective. The amount of acids in grape must ranges usually between 6.5 and 8.5 g/l and in wine between 4 and 8 g/l as a part of the acid precipitates in the form of salts during alcoholic fermentation.

Table 5. Average content of sugar and total acids in grape must

Clone	Sugar content in the grape must (%)			Total acid content (%)		
	base	middle	top	base	middle	top
ISV-F-V5	24.4	23.0	21.7	11.2	11.6	12.0
ISV-F-V6	25.1	24.4	21.7	10.0	10.8	10.8
R5	23.3	21.7	19.6	10.8	11.2	12.0

In all clones the same tendencies were demonstrated. Grape clusters in the base of bearing shoots had the highest sugar content and the lowest total acids, while grape clusters at the highest position, which are otherwise later formed, had the lowest total sugars and the highest total acids content. This confirms the fact that the clusters according to their position on the bearing shoot adversely affect the quality of the grapes and their contribution in the total yield is very low, and therefore should be removed in order to improve the quality of grapes.

The quality and yield of wine depends on the quality and yield of grape must. For 1 hl of grape must an average of 125-135 kg of grapes is necessary, and for 1 hl wine 130-150 kg of grapes. Of the total amount of grape must, 60% is separated as free-run, 30% as the first press fraction and about 10% as the second press fraction. Free-runis the fraction of the highest quality (the highest sugar and acid contents) while the press fraction sare richer in extractive substances. In the practice usually free-run is mixed with press factions in a ratio which should ensure the production of the highest quality wines.

Due to market demands the biggest problem for the manufacturers is how to maintain the standard quality of wines. For this purpose, it is sometimes necessary to correct/modify the chemical composition of the grape must (more often the sugar content is corrected/modified

than acid). Legal regulations determine/stipulate the level of correction/modification that must be controlled and monitored by the respective institutions.

Conclusion

Based on the performed tests and the results obtained it was revealed that the clone IS-F-V6 stood out in regard to the potential yield capacity. Clone ISV-F-V6 exhibited the best quality characteristics and it can be safely said that it was the best among the tested clones. In all clones the same tendencies were demonstrated in regard to size and quality of grape clusters of different positions on the bearing shoot. The first grape clusters in the base of bearing shoot were the most, they had the highest average mass, and therefore their share in the total yield was the highest. In addition, they resulted in the grape must of the best quality. Grape clusters on top of bearing shoots (third position starting from the base) had the lowest mass and significantly lower quality. In order to improve the quality of grapes and grape products, especially wine, these grapes should be removed. The tested clones were adapted to site conditions and are recommended for further expansion in the region of Grocka vineyards. Best production results were achieved by growing clones ISV-F-V6.

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UTICAJ RAZLIČITOG POLOŽAJA GROZDOVA NA RODNOM LASTARU NA REZULTATE PROIZVODNJEKLONOVA SORTE KABERNE SOVINJON

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Rezime

U radu su utvrđene razlike između klonova sorte Kaberne Sovinjon, odnosno razlike između uvoloških svojstava grozda i bobice, na osnovu različitog položaja na lastaru. Za brojne analize prinosa grožđa, uvoloških svojstava klonova korišćene su standardne ampelografske metode. Svi podaci su statistički obrađeni po metodi dvofaktorske analize varijanse sa ponovljenim merenjima jednog faktora (visine) i Tukey HSD testa. Najbolji rezultati su postignuti kod grozdova u osnovi rodnog lastara. Prvi grozdovi po položaju na lastaru imaju najveće učešće u ukupnom prinosu grožđa, najveću količinu šećera, a najviši grozdovi imaju veći sadržaj ukupnih kiselina. Između ispitivanih klonova su utvrđene razlike u pogledu produktivnosti i kvaliteta grozdova što se odrazilo i na vrednost proizvodnje.

Ključne reči: *Kaberne sovinjon, klonovi, položaj lastara, uvološka svojstva grozda, rezultati proizvodnje.*

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LEVEL OF CUSTOMER ORIENTATION AND CUSTOMER PROTECTION IN HOTELS IN SERBIA

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Summary

Hotels present an engine of tourism development. Their standard and orientation towards specific target groups of customers determine the strength of tourism offer. In addition, they contribute to the agricultural development, too, because they are the great buyers of agricultural products. According to official data, the existing potentials of Serbian tourism have been insufficiently valorised and Serbian hotels are in pretty poor condition- compared to international standards. Taking these facts into consideration, we can raise a question whether the key problems of Serbian hotels lie exclusively in inadequate accommodation capacities, or perhaps that there is a lack of customer- oriented business philosophy. Also the question is to what extent the legal regulations contribute to the protection of customer rights and their satisfaction. Therefore, the purpose of this paper is to ascertain the level of customer orientation in Serbian hotels, so as to find out whether members of hotel staff are acquainted with the notion of customer orientation and determine the degree to which this approach has been applied in practice. Conclusions and recommendations for improvement of competitiveness of hotels in Serbia are derived on the basis of research conducted by interviewing the employees of a sample of hotels in Serbia.

Key words: *customer orientation, customer satisfaction, protection of customers, marketing in hotel management industry*

JEL: *M21, M31.*

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Introduction

Today, the Republic of Serbia only has comparative advantages in tourism, while the process of transformation of comparative advantage into a competitive advantage in tourism of the Republic of Serbia is a part of the whole reform process, as well as the political attitudes towards tourism as an important creator of national wealth. Within the framework of the Tourism Development Strategy of the Republic of Serbia, untouched expanse of mountains, forests, agricultural fields, vineyards and hunting- fishing zones are distinguished as one of the important strategic resources of the Republic of Serbia for the success in tourism. There are more and more researches that recognize the importance of tourism, and especially rural tourism, for the development of local areas, reduction of unemployment and increase of living standards. Rural areas in Serbia have significant development potential due to their geographical, climatic and natural features (Antevski et al., 2012). In order to achieve sustainable rural development through the development of rural tourism, it is necessary to unite two spheres: agricultural production and tourism activity. It is a complex task. The complexity is caused by the entwinement of economic, social, cultural, historical and environmental factors, as well as the regional specifics of particular tourist and recreational complexes (Ivolga, Erokhin, 2013).

The relationship between tourism and agriculture is manifold. On the one hand tourism has a great impact on the development of rural areas, and on the other hand, the importance of tourism is reflected in the creation of markets for agricultural products, given that they are important inputs for hotels and restaurants. Hotels as a development engine of the tourism industry and one of the major buyers of agricultural products represent one of the key factors in driving economic development, based on the development of tourism and agriculture.

On the basis of conducted primary research it has been determined that an average hotel in the Republic of Serbia has 105 rooms, it is 42 years old, partially renovated 13 years ago and dominated by two and three-star buildings (Tourism development strategy of the Republic of Serbia) Taking into consideration these official data, we may conclude that the hotels in Serbia are in a rather bad position. If we add the fact that, in terms of opening our country towards the world, hotels in Serbia are facing additional pressure of growing competition in the tourism market, we come to a conclusion that they must put significant effort in order to improve their business, retain existing customers and acquire new ones.

One of the way in which hotels in Serbia may cope with growing competition is acceptance of the inevitability of customer orientation in order to ensure survival in the market and further growth and development. Customer orientation must represent a part of general philosophy of the hotel and must reflect the focus of all hotel employees towards the customers. Customer orientation implies consideration of all aspects of service business of the hotel, from a customer point of view, and taking into account customer expectations as a criterion for action of hotel employees.

In addition, if there is a striving towards competitive tourism, there must be a competitive legislation in terms of protection of customer rights. Protection of customers is a

constitutional category (Article 90 of the Constitution of the Republic of Serbia) which indicates the commitment of the state in the construction of a legal system within this area that corresponds to the contemporary democratic society whose development is based upon: market principles, ideas of responsibility and fairness. Customers must be informed of their rights and introduced to the structure of the Law on customer protection that must comply with EU regulations, as well as regulations of countries in the region, pursuant to which one could, with certainty, follow the successful manner of customer protection policy. Therefore, protection of customer rights must be expressed through basic notions of: laws, customer contracts, legal guarantees, commercial guarantees, customer rights in distance contracts and contracts concluded away from business premises.

Under changed circumstances of service economy, it is obvious that customers cannot be treated as it was the case in the past. There is a well-known sentence by Ford that states: "A customer can choose the colour of the car that he wants, provided that it is black", and such manner of thinking is ancient history. Developed countries have recognized the need for education and awareness of their customers, since knowledge of customer needs and rights is the key to the solution of everyday problems related to inadequate services, products, receipts, unaccepted complaints etc. The Government and state institutions also have a certain interest in knowing the behaviour of customers. Legal and other regulatory provisions are based upon customer behaviour. Theories and results of research of customer behaviour commonly underlie the laws related to the market. Studying customer behaviour is of general interest from the point of view of the society as a whole.

In the Western Balkans, as well as in other EU countries, there are customer organizations that inform customers about the quality of products, prices, products that may endanger the health and safety of customers, carry out customer education etc. Customer protection system in Serbia is partially in compliance with the directives and regulations of the European Union in the area of customer protection. (Grandov, Jovanović, 2011). The Law on customer protection, published in the "Official Gazette of the Republic of Serbia" no. 73/10, regulates the basic customer rights, conditions and means of customer protection, rights and obligations of associations and unions whose field of action is the achievement of objectives of customer protection, establishment of a system of extrajudicial settlement of customer disputes, as well as rights and obligations of state authorities in the area of customer protection. In order to increase competitiveness in hotel business, it is necessary that both management and employees are educated and aware of basic customer rights, in order to prevent their violation and endangerment.

Should any hotel decide to implement and apply customer orientation, it is necessary to be familiar with anything it covers, how customers can be affected, how to measure the degree to which the customer is provided with value and how to achieve long-term satisfaction and loyalty of customers. The remainder of this paper shall try to provide an answer to the question to what degree are hotels in Serbia customer oriented.

Literature overview

When defining the concept of customer orientation one may encounter a large number of attempts of various definitions in literature. In fact, it may be noticed that market orientation and customer orientation are quite often used as synonyms, which is due to the fact that both orientations have focuses aimed towards meeting the needs of customers (Brady, Cronin, 2005).

Deshpande et al. (1993) state that market orientation and customer orientation are synonyms, defining customer orientation as: "A set of beliefs that puts the customer's interest first, while not excluding those of all other stakeholders such as owners, managers, and employees in order to develop a long-term profitable enterprise". However, there are certain differences between these terms, although initially they may seem quite similar, and they cannot be used interchangeably.

Narver and Slater (1990) make a distinction between market orientation and customer orientation, and state that customer orientation is one of three behavioural components of market orientation, while the other two components are orientation towards competitors and inter-functional coordination. Kevin Zhou et al. (2007) also observe a distinction between customer and competitive orientation, and according to research in global hotel management industry, indicate that customer and competitive orientations have a different influence on the performances of a hotel, depending on market conditions.

Orientation towards customers is seen as a central part of a broader definition of market orientation given by Kohli and Jaworski (1993), which states that: "market orientation is, in fact, organization-wide generation of market intelligence pertaining to current and future requirements of customers, dissemination of intelligence horizontally and vertically within the organization, and organization-wide action or responsiveness to market intelligence." According to their research, organizations that are marketing oriented achieve higher levels of employee commitment to the organization, higher levels of customer satisfaction and improved business performance (Kohli, Jaworski, 1990).

Bruhn (1995) also points out the distinction between market and customer orientation. Market orientation involves focusing organizational activities towards all market participants and all interest groups, whereas orientation towards customers involves the creation of bilateral relationships between customers and the organization. He believes that: "Customer orientation is comprehensive, continuous collection and analysis of customer expectations as well as their internal and external implementation in an organization's services and interactions, with the objective of establishing stable and economically advantageous customer relationships on the long term". According to this definition, customer orientation may be seen as a task for hotel management and employees. Therefore, active implementation of customer orientation may create a knowledge base, which may enable the hotel management and employees to constantly learn about the perceptions and needs of current and future prospective customers, and understand what they really need.

Based on the abovementioned definitions, it is evident that the management and employees in particular, represent a key to customer orientation in organizations in general, and hotels as well. Therefore, should one wish to examine customer orientation of a hotel, it is necessary to conduct research on how customer-oriented are the employees and management. Nwankwo (1995) suggests a model for clear determination of customer orientation level, which consists of four basic interrelated determinants: definition, sensitivity, measurement and implementation. The validity of this model and coherence of determinants, emphasized by Nwankwo as key determinants, has been tested and confirmed by the author (Ćirić et al., 2013). The above model indicates that customer oriented organization is any organization that has all four determinants at a high level.

Definition determinant – Customer oriented organization in the focus of its business proceeds from customer, rather than organizational factors. Customer oriented organization has a clear image of customers, pursuant to which it selects target markets and creates products and services (Nwankwo, 1995). It is necessary to identify and understand the needs of a specific target market. These needs become wishes that are directed towards products/services that will achieve their satisfaction. Therefore, the main task of a customer oriented organization is to identify customer needs in target markets, and according to them adjust its marketing mix in order to achieve customer satisfaction and consequent profit (Ćirić, 2013). Investing in customer satisfaction involves certain expenditures of the organization, but in the long term, revenues realized based on the benefits from satisfied customers exceed the initial expenses and contribute to greater profitability of a service organization. That said, any service organization that wishes to obtain a long term market position must focus on customers, their satisfaction, and continuously work on the improvement of customer satisfaction (Ćirić, Klincov, 2008).

Sensitivity determinant – Customer oriented organization, in relation to the customer, acts proactively, i.e. tries to pre-determine what it is that customers want and expect, and to base its customer strategy on such information. Customer oriented organization does not wait for the problem to occur and then react, it shows empathy in advance to its current and prospective customers (Nwankwo, 1995). Should a hotel employee be able to read the emotions experienced by the customer and intervene positively, he may encourage the customer to transform from impatient, emboldened to eventually happy. Emotionally intelligent service staff may understand the emotional scenarios and then influence them in a positive way (Ljubojević, 2002). Henning-Thurau (2004) points out that one of the key components of company success is the orientation of employees towards customers. Researchers conducted by Macintosh (2007) emphasize very explicitly the importance of front office employees, especially in case of service organizations. According to the results obtained, customer orientation of front office employees directly positively affects customer loyalty and positive recommendations. Therefore, he suggests that particular attention must be paid to the selection, training and motivation of employees that shall be customer oriented. The main prerequisite for

good treatment of customers by employees is that the company treats its employees well. Employee satisfaction is a precondition for long term customer satisfaction. For this purpose, it is important to establish standards in order to improve the quality of services and control of employees (Popesku, 2013).

Measurement determinant – Uses formal methods and techniques for performance measurement which, in addition to sales, profit, market share also include customer indicators such as the level of customer satisfaction and loyalty. Customer oriented organization does not proceed from approximate market conditions and analyses of customer complaints, due to the lack of formal measurement mechanisms. It obtains, through formal methods of measurement, clear indicators of whether the implemented actions have contributed to the improvement of performances of the organization (Nwankwo, 1995). Customer oriented organization needs to establish how customers perceive the performance of its services used by them, as well as how they perceive service performances of competitive companies. Pursuant to these data, the company shall acquire knowledge in regard to which service characteristics are of greatest importance to the customers. To obtain such data, the organization may measure service quality and research customer satisfaction. Then, it is necessary that the company establishes, on the basis of internal data, the level of actual performances of its services in terms of characteristics of importance to the customers. In this way, the organization obtains a basis upon which it may improve its services in the future. Apart from that, it is necessary to distribute research results throughout the entire organization, so that all employees understand that user satisfaction is something that is measurable, and that it is an element that has a direct impact on the organization's business (McNealy, 1994).

Implementation determinant – Customer oriented organization works intensively on providing the expected value to the customer. In customer oriented organizations, management and employees are fully engaged and motivated to meet the customer's expectations and provide him with maximum level of satisfaction. Implementation involves the process of conversion of marketing plan into actions that should lead to the execution of planned objectives (Novaković Rajčić, 2008), but even the best marketing plan shall not be effective if the company does not have any customer oriented staff that shall be able to implement the defined plan in an appropriate manner. An integral part of this phase is certainly the issue of respect and protection of customer rights. Namely, in addition to activities of strengthening customer protection, it is necessary to create an environment in which the customers can exercise and use their rights. The prerequisite for this is to create a system in which the customers are aware of their rights and responsibilities, have access to information and advice, are aware that they are secure in the market and that there are efficient mechanisms for protection of their rights. This practically means that legal remedies and possibility of damage reimbursement are available to the customers. Confident, protected and active customers are those who seek better quality of services and goods, and they are the main drivers of innovation and improvement of competitiveness of companies. (Customer protection strategy) Hotel management and employees must be familiar with the basic provisions of the

Law on customer protection. The employees must be ready to respond to any customer complaints, to fully comply with all their rights and ensure their satisfaction. Apart from that, the management and employees should observe in customer complaints a chance to improve their services and increase business competitiveness.

All four abovementioned determinants (definition, sensitivity, measurement and implementation) are mutually connected, and only those organizations that have high levels of all these determinants may be considered as customer oriented, and that they may obtain positive benefits from such orientation.

We have used the above Nwankwo model, with certain modifications and adjustments in accordance with specific features of hotel management industry, to determine the level of customer orientation in hotels in Serbia.

Research method

The research was conducted in the territory of Šumadija and Moravički district.

The research sample consists of nine hotels and one villa. Random selection method was used for the selection of a representative sample. The selection of random sample was made from the list of hotels using a table of random numbers.

The research was carefully prepared. The treatment of respondents was clearly and precisely designed. Clear, accurate and sufficiently detailed instructions were prepared for the respondents and contributors of the research. A method of collecting and recording data was also determined.

The research was conducted using a survey method. A list of specially formulated questions grouped into four categories had been prepared for the survey: Definition; Sensitivity; Measurement; and Implementation.

Each group consisted of seven questions. The respondents replied to the questions by writing down numbers from the enclosed scale.

Appendix: Questionnaire

The respondents of the survey were chosen from employees using random selection criterion. The survey was anonymous. Upon completion of the survey, the questionnaires were analysed.

First, the questionnaire was reviewed, question validation check was conducted and errors in filling were corrected. There were no rejected questionnaires.

After that, the questionnaires were coded, i.e. data coding was performed. Since the data had already been entered numerically from the beginning, a single control check was conducted. There were no corrections.

The third phase included classification and tabulation of data, compiling of appropriate tables for efficient graphic representation of research results.

Results and discussion

Research results are expressed in percentages and points, and displayed in tabular form.

Table 1. Research results in percentages and points

Hotel name	Total number of employees	Surveyed employees	Definition		Sensitivity		Measurement		Implementation	
			%	Point	%	Point	%	Point	%	Point
Hotel „Šumarice“ Kragujevac	36	1	80	28	77	27	85	30	91	32
		2	82	29	62	22	77	27	91	32
		3	68	24	54	19	60	21	54	19
		4	88	31	80	28	80	28	88	31
		5	77	27	68	24	80	28	80	28
Hotel „Zelengora“ Kragujevac	28	1	91	32	85	30	85	30	94	33
		2	85	30	82	29	91	32	100	35
		3	88	31	85	30	88	31	88	31
		4	91	32	85	30	88	31	91	32
		5	97	34	85	30	91	32	88	31
Hotel „Kragujevac“ Kragujevac	31	1	80	28	68	24	85	30	91	32
		2	71	25	77	27	85	30	82	29
		3	74	26	74	26	85	30	80	28
		4	80	28	74	26	74	26	88	31
		5	74	26	77	27	80	280	88	31
Hotel „Stari grad“ Kragujevac	18	1	82	29	82	29	80	28	80	28
		2	94	33	65	23	74	26	80	28
		3	71	25	68	24	68	24	71	25
		4	77	27	77	27	85	30	82	29
		5	88	31	77	27	80	28	85	30
Hotel „Euro Gaj“ Ravni Gaj	18	1	74	26	57	20	48	17	62	22
		2	85	30	68	24	71	25	85	30
		3	74	26	68	24	62	22	80	28
		4	62	22	62	22	71	25	71	25
		5	80	28	62	22	57	20	71	25
Hotel „Neda“ Rudnik	24	1	77	27	65	23	74	26	68	24
		2	71	25	71	25	68	24	62	22
		3	54	19	57	20	65	23	60	21
		4	80	28	74	26	77	27	68	24
		5	65	23	60	21	60	21	57	20
Hotel „Oplenac“ Topola	28	1	77	27	66	23	63	22	68	24
		2	80	28	57	20	63	22	68	24
		3	91	32	71	25	68	24	82	29
		4	68	24	60	21	68	24	71	25
		5	68	24	51	18	60	21	57	20
Hotel „Plana“ Velika Plana	27	1	88	31	77	27	94	33	91	32
		2	77	27	60	21	80	28	77	27
		3	91	32	77	27	77	27	85	30
		4	77	27	82	29	91	32	94	33
		5	77	27	88	31	80	28	88	31

Hotel name	Total number of employees	Surveyed employees	Definition		Sensitivity		Measurement		Implementation	
			%	Point	%	Point	%	Point	%	Point
Hotel „Beograd“ Čačak	34	1	84	32	77	27	80	28	82	29
		2	82	29	68	24	65	23	74	26
		3	68	24	71	25	54	19	65	23
		4	82	29	71	25	80	28	80	28
		5	74	26	71	25	71	25	68	24
Vila „Aleksandar“ Orašac Arandjelovac	29	1	88	31	83	29	80	28	77	27
		2	86	30	86	30	88	31	86	30
		3	85	30	82	29	77	27	80	28
		4	77	27	71	25	77	27	74	26
		5	80	28	68	24	77	27	85	30

Source: According authors' calculation

Table 2. Research results in average percentage values

Hotel	Definition	Sensitivity	Measurement	Implementation
Hotel "Šumarice" Kragujevac	79	68,2	76,4	80,8
Hotel "Zelengora" Kragujevac	90,4	84,4	88,6	92,2
Hotel "Kragujevac" Kragujevac	75,8	74	81,8	85,8
Hotel "Stari Grad" Kragujevac	82,4	73,8	77,4	79,6
Hotel "Euro Gaj" Ravni Gaj	75	63,4	61,8	73,8
Hotel "Neda" Rudnik	69,4	65,4	68,8	63
Hotel "Oplenac" Topola	76,8	61	64,4	69,2
Hotel "Plana" Velika Plana	82	76,8	84,4	87
Hotel "Beograd" Čačak	78	71,6	70	73,8
Vila "Aleksandar" Orašac	83,2	78	79,8	80,4
Average value	79,2	71,66	75,34	78,56

Source: According authors' calculation

The points represent the sum of numeric grades and percentages were calculated by dividing total points with 35 and multiplying by 100.

According to Nwankwo, author of the model, the hotels may be observed as having a high level of customer orientation should they have grades above 75% for each determinant: definition, sensitivity, measurement and implementation. Pursuant to the above table, we can conclude that only three hotels have percentages above the level specified for all variables. This implies that only three hotels, i.e. 30% of the sample have a high level of customer orientation.

Taking into account the obtained results, it is clear that hotels in Serbia may work on increasing their own competitiveness through increasing the level of customer orientation in every aspect, from definition, through sensitivity, measurement, to implementation. Since these determinants are mutually connected (Ćirić et al., 2013), an increase in each of said determinants significantly increases the overall level of customer orientation of the hotel and its competitiveness in the market.

What is observed as positive in these results is the fact that other hotels, even though they do not have high levels of customer orientation, are not in a bad situation. The lowest value shown in the research is 61%, in the category of sensitivity, which reflects a mid-level customer orientation.

If we individually analyse each determinant, we may notice that the definition determinant was evaluated as best, with average value of 79,2%, and that no hotel has a value of less than 75%. The obtained result is encouraging, since it shows that hotels in Serbia have a high level of employee awareness about the need to observe the entire service offer and service process from the customer's point of view and to adapt to the customers in order to meet their needs and desires.

Sensitivity is the lowest evaluated determinant with an average value of 71,66%. What is also indicative is the fact that in seven out of ten examined hotels, the sensitivity category was the lowest evaluated determinant in relation to all four determinants. In other words, employees must have a more proactive approach in relation to their clients, and show a greater degree of empathy and emotional intelligence. The above is in accordance with the views of Beech and Chadwick (2006) who believe that the key factor for successful business on strategic, operational and individual level is staff training. It is also in accordance with the views of Popesku (2013) who states that an organization must work on the increase of employee satisfaction, resulting in a better quality of service for the customers. It is also consistent with the view of Goleman (1998) who emphasizes that learning emotional intelligence by the employees is a difficult yet successful process. However, the benefits from possessing emotional intelligence deserve every effort that should be taken in the direction of building emotional intelligence of an individual and the organization.

The average value of measurement determinant is 75,34% pursuant to which it may be concluded that hotels are working on measuring the quality of services provided, encouraging customers to present complaints and suggestions in order to improve the quality of services, as well as that measurements are based on specific methods and not approximate assessments. However, although this average grade indicates a high level of customer orientation of hotels in this segment, it is indicative that four hotels have values below 75%, which shows that in this segment there is plenty of room for the improvement of customer orientation and increase of hotel competitiveness.

The average value of implementation determinant, in the amount of 78,56%, supports the fact that hotels have good implementation of marketing plans, good organization of employees, team spirit, atmosphere in which the customer is always right and complaints are responded to in an appropriate manner. Legally guaranteed customer rights are observed and everyone in the organization is responsible for the provision of full customer satisfaction. Only one hotel had a value below 75%, which means that in this segment, hotel management industry in Serbia is at a high level.

Conclusion

Pursuant to research conducted, we may conclude that regardless of currently inadequate accommodation capacities, hotels in Serbia are not in a completely hopeless situation, as it may seem at first sight. In fact, they can base their competitive advantage in the market on high quality management and very customer oriented employees. Even 30% of hotels are at a very high level of customer orientation, while the remaining 70% are above the average level of customer orientation. It is encouraging that, in all examined hotels, it has been noted that there is a high level of awareness of the need for customer orientation. It has been observed that hotels tend to tailor their service offers in accordance with the requirements and needs of customers. Factors relevant to customers are, in order of importance, above internal organizational factors. Also, it has been proven that there is an excellent system of implementation of marketing plans in order to meet customers' needs. There have been positive responses to complaints and there is a fostered system of customer protection at hotel level. Managers and employees observe complaints as an opportunity for business improvement, not as a criticism that causes negative reactions. The hotels may wish to work on primarily sensitivity and measurement determinants, in order to improve their customer orientation. The weakest point of hotels in Serbia is, when it comes to customer orientation, the sensitivity determinant. Therefore, it is recommended for the management to give efforts in strategy formulation and decision making and pay more attention to factors in the environment, customer expectations and potential wishes that might develop. Managers need to create competitive advantage by using collected information and knowledge base on customers to be able to anticipate in advance what is it that may provide the customer with satisfaction, and then to meet their wishes and expectations better than its competitors. Apart from that, the management may engage more in the motivation of employees and their training, in order to develop their emotional intelligence, in addition to technical and conceptual skills, that is reflected in the knowledge of own emotions, managing emotions, self-motivation, recognition of emotions of others and managing relationships. In this way, through the creation of employees with such competence, it is possible to achieve better anticipation and meeting of customer needs, which in turn creates a competitive advantage that is extremely difficult to copy. When it comes to measurement determinant, competitive advantage may be enhanced via introduction of formal methods for continuous research of quality of service and research of customer satisfaction, and distribution of obtained information across all levels of the organization, in order to thereby create an adequate knowledge base on customers and their needs and wishes, which would allow an even higher level of hotel customer orientation and achievement of higher levels of customer satisfaction.

So, to summarize, high quality human resources and customer oriented philosophy are for the most part present in the examined sample of hotels in Serbia. Of course, there is room for improvement, as we have noted. Therefore, the situation in hotel management industry is not completely poor and there is a chance of improvement in perspective. What should be done is to find investments for renovation and improvement of existing capacities and invest certain funds in brand building. Also, one of the things that would

contribute to the improvement of hotel offers is putting emphasis on the offer of healthy domestic food and local specialties. Then, new services specific to the area in which the hotel is located may be introduced, such as relaxing massage with raspberries, which are a readily built brand from the area of Šumadija and the like. In cooperation with tourist agencies, hotels may enhance their offer through organizing visits to village households where the tourists could enjoy the authentic ambience of a Serbian village and eat food prepared in the traditional manner. Also, a souvenir and local handicrafts shop should be a mandatory part of the hotel complex, and thus tourists would not have to look for shops to buy something as a souvenir, and everything they wanted would be at their fingertips. In such case, hotels that would improve both tourism and agricultural production, and which would be able to cope with global competition, would be developed.

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Appendix

Survey

For each statement, evaluate the extent to which that statement is true for your organization, using the following scale: 1 = Not at all; 2 = To a small extent; 3 = To a medium extent; 4 = To a great extent; 5 = To a very great extent.

Definition:

1. My organization has a clear image of customers and their needs.
2. My organization defines its products/services from a customer's perspective.
3. In my organization we have specific objectives that are customer oriented.
4. We actively seek and listen to customer comments.
5. Managers in my organization spend time with customers.
6. Fulfilment of customer needs has a priority over the fulfilment of our internal needs.
7. Market research is a very important activity in my organization.

Sensitivity:

1. We encourage customers to get involved in defining production/service objectives and standards of the organization where I work at.
2. We know which attributes of our products are valued the most by our customers.
3. We exceed the expectations of our customers in terms of things that are of highest importance to them.
4. Customer strategies in my organization are far more based on the analysis of market conditions, rather than the ambitions of the organization.
5. In the formulation of customer strategies, we try to avoid predicting the future, in such a manner that we observe the future on the basis of past trends.
6. My organization understands that customer satisfaction is very important.
7. Employees in my organization are trained, supported by necessary resources and encouraged to provide the customer with satisfaction in regard to products/services.

Measurement:

1. My organization explicitly tells customers about the fact that we are entirely at their disposal.
2. Customers are encouraged to give us feedback on our performances.
3. We regularly measure the standards of our services and performances.
4. We regularly analyse customer complaints and use obtained information in the process of strategy development.
5. Are the results or performance measurement available to everyone, visible and updated?
6. We apply well known methods of performance measurement, and we do not rely on approximate methods.
7. Front office staff in my organization is constantly informed about how they should perform their work.

Implementation:

1. CEO of my organization is a champion in customer relations.
2. In undertaking customer initiatives, we strive to establish operating rules that are flexible and sustainable.
3. In my organization there is strong motivation among the staff and we would do anything to meet the customers' requirements.
4. Teams from various departments within my organization work together and effectively in order to achieve common goals.
5. In my organization there is agreement in regard to what we should do in order to be successful.
6. In my organization, customer comments and complaints are promptly responded to.
7. Everyone in my organization is responsible for resolving customer problems.

NIVO POTROŠAČKE ORIJENTACIJE I ZAŠTITE POTROŠAČA U HOTELIMA SRBIJE

Maja Ćirić[4], Milan Počuča[5], Vuk Raičević[6]

Sažetak

Hoteli predstavljaju razvojni motor turističke privrede. Njihov standard i njihova orijentacija prema ciljnim grupama potrošača determinišu snagu turističke ponude. Osim toga oni, takođe, doprinose i poljoprivrednom razvoju, obzirom da predstavljaju velike kupce poljoprivrednih proizvoda. Uzimajući u obzir činjenicu, da su prema zvaničnim podacima, postojeći turistički potencijali Srbije nedovoljno valorizovani, a hoteli u prilično lošem stanju u odnosu na međunarodne standarde može se postaviti pitanje da li je problem koji postoji u hotelima u Srbiji isključivo u neadekvatnim smeštajnim kapacitetima, ili pak ne postoji generalna filozofija orijentacije prema potrošačima. Pitanje je i u kojoj meri pravna regulativa doprinosi zaštiti prava potršača i njihovoj satisfakciji. Stoga je cilj ovoga rada utvrđivanje nivoa potrošačke orijentacije hotela u Srbiji kako bi se došlo do saznanja da li su zaposleni u hotelima upoznati sa pojmom potrašačke orijentacije i u kojoj meri se ona primenjuje u praksi. Na osnovu sprovedenog istraživanja anketiranjem zaposlenih na uzorku hotela u Srbiji izvode se zaključci i preporuke za poboljšanje konkurentnosti hotela u Srbiji.

Ključne reči: *potrošačka orijentacija, satisfakcija potrošača, zaštita potrošača, marketing u hotelijerstvu.*

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MOTIVES FOR FOOD CHOICE AMONG SERBIAN CONSUMERS

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Summary

People's motives for food choice depend on a number of very complex economic, social and individual factors. A Food Choice Questionnaire (FCQ), an instrument that measures the importance of factors underlying food choice, was used to reveal the Serbian consumers' food choice motives by survey of 450 respondents of different age groups. A confirmatory factor analysis was conducted on the motive items, using 11 factors. Previous research shows that the nutrition in Serbia is not balanced enough, and therefore the analysis of motives for food choice is considered a useful tool for the planning of more efficient public policies and interventions aimed at influencing healthier eating habits. Hence the results can be useful for researchers as well as for public institutions which deal with creating the strategy of public health or businessmen who produce and sell food products, because knowing consumer behaviour is necessary for product success on the market.

Key words: *food, consumer, motives, Food Choice Questionnaire, Serbia*

JEL: *D91, I18, L19.*

Introduction

Eating habits are formed in the past under the influence of natural and climatic factors, and local agricultural production. Today, they are changing very rapidly, and are most affected by social mega trends (Gagić et al., 2012).

In scientific and professional circles, there is no more resistance to the claim that nutrition is the most important factor which influences health. Modern society is facing an epidemic of

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chronicle diseases caused by bad nutrition habits and therefore, over the last years, there has been an increased interest in foods as well as in the effect of specific foods and nutrients on health (Sevak et al., 2004).

However, health is not the only factor people take into account when choosing their food. There is a set of motives significance for many people such as sensory appeal, price, ethical concern, weight control, convenience, natural content, familiarity, etc.

People perceive food as a means of satisfying different needs when making dietary choices, other than solely nutrition. Food consumption is affected by a multitude of influences. Some will use food to maintain a desirable body weight and to keep good looks; others will perceive it as a status symbol, prestige, as the shortest way for reaching satisfaction, as a means of preserving good health, etc.

Recent research in Serbia emphasizes the analysis of perceptions and attitudes of customers towards particular types of food products, for example, dairy products, (Vlahović et al., 2005), vegetables (Rodić et al., 2007), functional food (Stojanović et al., 2010), etc. However, a literature review indicates a lack of qualitative research studies on food choice motivation.

Measuring the motives behind food choice can be beneficial for a wide diversity of decisions, ranging from more successful product development and design of promotional campaigns until the planning of more efficient public policies and interventions aimed at influencing healthier eating habits (Januszewska et al., 2011). Given the data presented by the Institute of Public Health of Serbia 'Dr Milan Jovanović Batut' in 2008, which show that in Serbia, there are 54.5% registered inhabitants who are overweight, 18.3% of which are obese and 36.2% are pre-obese, it is clear that interventions are necessary. There were 2.3% of undernourished people. It was recorded that 11.6% of children and adolescents of the age between 7 and 19 were moderately obese and 6.4% were obese, which indicates an increase compared to 2000, when there were 8.2% of moderately obese and 4.4% of obese children and adolescents.

Consumers are increasingly involved in the development of new products and services. Therefore it is very important to observe their desires, needs and motives so that an organization can gain a good position in the market.

The food choice questionnaire (FCQ) was used as a tool to measure the motives underlying people's selection of food (Steptoe et al., 1995). It consists of 36 questions testing in a systematic way health-related and non-health related motives of food choice. With an attempt to modify the FCQ, one more groups of items were added related to food image. It was presumed that product awareness created by the media, experts and environment occurs as a motive for food choice.

The eleven found factors appear as groups of statements related to health, mood, convenience, sensory appeal, natural content, price, weight control, familiarity, ethical concern and food image.

Materials and methods

Participants and data collection

Questionnaires were completed by consumers in Serbia. The questionnaire consists of detailed socio-demographic characteristics of pooled samples (gender, age, education, income, occupation, settlement type), and ten dimensions were included, namely weight control, price, ethical concern, convenience, natural content, health, sensory appeal, availability, familiarity and food image.

Data collection was performed during the period from February until May, 2012. To achieve a heterogeneous sample, the questionnaire was handed out to pupils at elementary schools, high schools, students at faculty, employees and retirees in a nursing home. Participants were randomly selected. The research data are yielded from a sample of 450 consumers included 277 females and 173 males. Detailed socio-demographic characteristics of the pooled samples are provided in Table 1.

Table 1. Selected socio-demographic characteristics of the samples (N=450)

Variable	Category	Number of respondents	Percent of respondents
Gender	Male	173	34.1
	Female	277	54.5
Age	≤ 15	61	13,5
	16-20	126	28.1
	21-25	101	22.4
	26-35	104	23.1
	>36	58	12.9
Occupation	pupils in elementary school	62	13.8
	pupils in high school	94	20.9
	students	108	24.0
	employed	141	31.3
	unemployed	31	6.9
	pensioners	14	3.1
Education level	lower	137	30.4
	middle	103	22.9
	higher	210	46.7
Financial situation	Without income (students, pupils, unemployed)	246	54.7
	difficult moderate	95	21.1
	moderate	78	17.3
	moderate-well off	31	6.9
Settlement type	urban	122	27.1
	rural	328	72.9

Questionnaire content

The questions were related to food in general that is consumed on a typical day. Potential motives for choosing food were almost entirely based on the Food Choice Questionnaire

(FCQ) as described by Steptoe et al., 1995. The food choice questionnaire has been successfully applied to numerous world's countries' populations such as British (Steptoe et al., 1995), Finnish (Lindeman, Vaananen, 2000) Uruguayan (Ares, Gambaro, 2007), Belgian (Eertmans et al., 2005; Pieniak et al., 2009), Russian (Honkanen, Frewer, 2009), French, Italian, Norwegian, Polish and Spanish (Pieniak et al., 2009), Thai (Sun, 2008), Western Balkan Countries population (Milosevic et al., 2012), Hungarian, Romanian, Philippine (Januszewska et al., 2011), Japanese, Malaysian and New Zealand (Prescott, et al., 2002) and many other studies.

The convenience factor in the original questionnaire was split into convenience and availability dimensions (Honkanen, Frewer, 2009). One more factor had been added – food image. This variable consists of the following items 'Is advertised on TV', 'Is recommended by nutrition experts', 'Is on sale in the market' and 'Is recommended by friend'. A confirmatory factor analysis was conducted on the motive items, using 11 factors.

Participants rated the importance of each of the 43 FCQ-items on a five point Likerts scale. We opted for such scale instead of the original four point scale used by Steptoe et al. (1995) in order to avoid a forced agreement or disagreement of respondents. Items were introduced with the statement: 'It is important to me that the food I eat on a typical day...' with responses ranging from 1 - 'not at all important' to 5 - very important'.

Analysis and results

Item statistics

The highest importance of individual items is given to the following: tastes well (4.38), keeps me healthy (4.08) and smells nice (4.00). On the other hand less dispersion from the mean is detected for 'Is advertised on TV' (2.42), 'Comes from countries I approve of politically' (2.59) and 'Is on sale in the market' (2.71).

Table 2. Mean and Standard Deviation for whole sample and by gender.

	Whole sample		Male		Female	
	Mean	SD	Mean	SD	Mean	SD
Sensory appeal	3.98	1.00	3.90	1.06	4.03	.95
Health	3.87	1.08	3.86	1.08	3.88	1.08
Availability	3.75	1.11	3.72	1.06	3.77	1.15
Natural content	3.74	1.11	3.62	1.11	3.81	1.11
Convenience	3.62	1.16	3.37	1.21	3.78	1.10
Weight control	3.58	1.09	3.31	1.18	3.76	.99
Price	3.57	1.02	3.59	1.02	3.55	1.02
Mood	3.42	1.19	3.27	1.22	3.51	1.16
Familiarity	3.08	1.24	3.05	1.21	3.10	1.26
Ethical concern	2.81	1.19	2.82	1.19	2.81	1.20
Food image	2.79	1.13	2.67	1.10	2.85	1.14

Table 2 presents the mean ratings for each factor separately for males and females as well as for whole sample.

For the sample as a whole, the highest importance of individual subscales measured through mean scores is recorded for 'sensory appeal' (3.98) what was confirmed by results of the many qualitative interviews (Magnusson et al., 2001; Wandel, Bugge, 1997; Honkanen, Voldnes, 2006; Januszewska, Pieniak, Verbeke, 2011). Health is also second important factor in Serbia (3.87), and the third is 'Availability' (3.75). The result is in accordance with the theory of contradictions in food consumption (health vs. indulgence) developed by Leipamaa-Leskinen (2007) and it supports the whole theoretical knowledge that health is an important motivating factor in food consumption. According to Flynn, et al., 2003, the majority of individuals in Europe have adequate intakes of most nutrients. Health is also recognised as one of the most important determinants of food choice in Verbeke's, 2008 and Steptoe's et al., 1995, research.

Compared with the Steptoe et al., 1995, where the authors found that sensory appeal, health, convenience and price were the most important factors among consumers in Great Britain, there are some differences in the importance ranking of the Serbian consumers motives. First, the mood was considered far less important in Serbia than in Great Britain as well as price. Second, for Serbs the most important factors are sensory appeal, health and availability.

The lowest importance is assigned to 'ethical concern (2.77) and 'food image' (2.79) as with Eertmans et al., 2005, who analysed food choice motives across western urban populations. None of the factors in general thus appear irrelevant in motivating food choice.

There are almost no differences in the ranking of factors by gender: for males and females the most important concerns are 'sensory appeal', 'health', 'availability' and 'natural content'. Female rate convenience as more important factor than man. Considering that the variables which comprised this factor were 'Is easy to prepare', 'Can be cooked very easily' and 'Takes no time to prepare', and that cooking is a duty of women in most households in Serbia, the result is explicable. It could also be noticed that women give higher importance to the factors 'Mood' and 'Weight control', which is to be expected since women are likely to connect food and emotions, and they are more often on special diets in order to lose weight. Men find price more important compared to women.

Both males and females rate 'food image' and 'familiarity' and 'ethical concern' as the least important factors.

Confirmatory factor analysis

Before conducting a factor analysis, the adequacy of data for a factor analysis was estimated.

Table 3. Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO)

KMO and Bartlett's Test		
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.828
Bartlett's Test of Sphericity	Approx. Chi-Square	12840.673
	df	780
	Sig.	.000

Table number 3 presents the value of the Kaiser-Meyer-Olkin Measure of Sampling Adequacy (KMO) which amounts to 0.83 surpassing the recommended value of 0.6. (Kaiser, 1970, p. 197) while the value of the Bartlett's Test of Sphericity (Bartlett, 1954) is significant (Sig value is lower than 0.05) indicating that the set of analysed data is adequate and/or the factor analysis is justified.

Though use of the oblique rotation 43 items of the FCQ (Steptoe et al., 1995) were factor analysed. The highest loading items were selected and shown in table 4. The eleven factors accounted for 64.1 % of the variance.

The individual item standardised factor loadings on the constructs were all significant with values ranging from 0.79 to 0.47. Only a few items appeared to have low loadings, less than 0.60. Hence, all the items were considered in the interpretation of the factors (Hair et al., 2006).

Table 4. Factor loadings and reliability estimates for motives for food choice

Item name and number		Factor loadings
		Mood **Chronbach's alpha 0.86**
13	Cheers me up	**.71**
31	Makes me feel good	**.71**
24	Keeps me awake/alert	**.69**
34	Helps me cope with life	**.64**
26	Helps me relax	**.63**
16	Helps me cope with stress	**.55**
		Health **Chronbach's alpha 0.84**
22	Contains a lot of vitamins and minerals	**.77**
29	Keeps me healthy	**.75**
30	Is good for my skin/teeth/hair/nails etc.	**.66**
10	Is nutritious	**.61**
27	Is high in protein	**.57**
9	Is high in fibre	**.50**
		Familiarity **Chronbach's alpha 0.81**
8	Is familiar	**.70**
33	Is what I usually eat	**.63**
21	Is like the food I ate when I was a child	**.51**

Item name and number		Factor loadings
		Ethical concern **Chronbach's alpha 0.84**
19	Is packaged in an environmentally friendly way	**.61**
20	Comes from countries I approve of politically	**.55**
32	Has the country of origin clearly marked	**.47**
		Natural content **Chronbach's alpha 0.86**
2	Contains no additives	**.78**
5	Contains natural ingredients	**.70**
23	Contains no artificial ingredients	**.66**
		Sensory appeal **Chronbach's alpha 0.80**
4	Tastes well	**.79**
14	Smells nice	**.67**
18	Has a pleasant texture	**.56**
25	Looks nice	**.54**
		Food image **Chronbach's alpha 0.79**
37	Is advertised on TV	**.64**
38	Is recommended by nutrition experts	**.63**
39	Is on sale in the market	**.58**
40	Is recommended by friend	**.54**
		Preparation convenience **Chronbach's alpha 0.82**
1	Is easy to prepare	**.79**
15	Can be cooked very easily	**.68**
28	Takes no time to prepare	**.58**
		Price **Chronbach's alpha 0.78**
6	Is not expensive	**.70**
12	Is good value for money	**.62**
36	Is cheap	**.57**
		Weight control **Chronbach's alpha 0.81**
3	Is low in calories	**.70**
7	Is low in fat	**.66**
17	Helps me control my weight	**.58**
		Availability **Chronbach's alpha 0.76**
11	Is easily available in shops and supermarkets	**.62**
35	Can be bought in shops close to where I live or work	**.59**

Extraction Method: Principal Component Analysis.
Rotation Method: Oblimin with Kaiser Normalization.
a. Rotation converged in 9 iterations.

The reliability of the overall FCQ typology in our study is very high. Measurement scale reliability is assessed by the most frequently used indicator of internal consistency, the

Cronbach's Alpha coefficient. The internal consistency of the FCQ factors was high, with Cronbach scores as follows: 0.86 for 'Mood', 0.84 for 'Health', 0.81 for 'Familiarity', 0.84 for 'Ethical concern', 0.86 for 'Natural content', 0.80 for 'Sensory appeal', 0.79 for 'Food image', 0.82 for 'Preparation convenience', 0.78 for 'Price', 0.81 for 'Weight control' and 0.76 for 'Availability'showing a very good reliability and internal consistency of the scale for the subject sample. Although the availability dimension was composed of only two items, those two items had consistently high loadings; thus this dimension was retained in the final factor structure.

Conclusion

Empirical data of the present research support the robustness of the original 36-item FCQ. Factor analysis distinguished all nine factors from the original questionnaire (Steptoe et al., 1995), as well as two additional – availability and food image.

The results indicate that sensory appeal is the most important factor among the Serbian consumers. This result confirms the original study on the British population and corresponds to the findings on New Zealanders with European origin (Prescott et al., 2002). Our research also shows that health, availability, natural content and convenience are among the five most important factors shaping food choice in Serbia.

Despite the fact that the last decade of the last century in Serbia was marked by wars, international sanctions and negative consequences which they produced, leading to social instability and the decline in purchasing power, the price was ranked as the seventh out of eleven observed factors.

Compared to the results from the normative Steptoe et al., 1995, sample, the Serbian consumers seem to attach high importance to more or less the same motivational dimensions such as sensory appeal, health and convenience. However, the importance assigned to natural content of food is the higher than it was almost two decades ago since the original Steptoe et al., 1995, research was conducted. It is the fact that the consumer becomes more conscious of nutrition and food ingredients than ever before and they are closer to food safety-related issues.

Finally, the least important food choice factors found in studies of Steptoe et al., 1995, are in line with our findings. Familiarity and ethical concern were the least important motives while choosing food. Obviously, Serbian consumers did not care about ethical issues, at least those implicated in the FCQ, i.e. country of origin, labelling and environmentally friendly package.

Given that the factor 'food image' was ranked as the last in the list of motives for food choice, the initial assumption that the food perception which consumers acquire through the media or their environment is an important motive for the choice is rejected.

These results can improve the efficacy of communication strategies for nutrition/health policy, and they can be very useful information for creating the strategy for introducing food products to Serbian market.

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MOTIVI ZA ODABIR HRANE KOD POTROŠAČA U SRBIJI

Snježana Gagić[5], Ana Jovičić[6], Dragan Tešanović[7], Bojana Kalenjuk[8]

Rezime

Motivi ljudi za odabir hrane zavise od niza veoma složenih ekonomskih, socijalnih i individualnih faktora. Upitnik o izboru hrane (Food Choice Questionnaire), korišćen je kao instrument koji identifikuje faktore koji utiču na odabir hrane kod srpskih potrošača različitih starosnih grupa na uzorku od 450 ispitanika. Konfirmatornom faktorskom analizom izdvojeno je jedanaest faktora. Prethodna istraživanja ukazuju da ishrana u Srbiji nije dovoljno uravnotežena, stoga se analiza motiva za odabir hrane smatra korisnom za planiranje efikasnijih aktivnosti koje imaju za cilj unapređenje navika u ishrani. S tim u vezi, rezultati mogu biti korisni za istraživače, javne institucije koje se bave izradom strategije javnog zdravlja ili za privrednike koji proizvode i prodaju prehrambene proizvode zbog neophodnosti poznavanja potreba potrošača za uspeh proizvoda na tržištu.

Ključne reči: *hrana, potrošači, motivi, FCQ upitnik, Srbija.*

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ANALYSIS OF BUCKWHEAT PRODUCTION IN THE WORLD AND SERBIA[1]

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Summary

During the period 2010-2011 about 2.113 million ha of buckwheat was sown annually worldwide. Average yield of buckwheat during the monitored period was 913 kg ha^{-1}. Areas and average yield have a rising tendency. The most significant producers of buckwheat in the world are: China, Russia and Ukraine. In Serbia buckwheat is produced on small areas.

The paper presents results of testing of four buckwheat varieties, produced on plots of the Institute for crops and vegetables as follows: Novosadska, Godijevo, Bamby and Češka. Analysis of average yield has shown that Novosadska variety produced statistically significant higher yield (2626 kg ha^{-1}) compared to the other varieties tested ($p < 0.05$).

From the results shown we can see that buckwheat yield in Serbia is significantly higher compared with the world average yield, which tells us that this plant can be successfully produced in our agro-ecological conditions of growing.

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Key words: *area, buckwheat – Fagopyrum esculentum, Serbia, yield, world.*

JEL: *Q16, M24*

Introduction

Buckwheat (*Fagopyrum esculentum* Moench) is annual monocarp plant from a group of alternative wheat form family of *Poligonaceae*, species *Fagopyrum* (Sharma, Jana, 2002). Primary gene of buckwheat origin is from wider area of Central Asia.

The name of this species is derived from two words fagus (beech) and pyros (beech and wheat). Sown areas in the world in a last decade are doubled, from a million to over two million hectares. This cultivated plant species is notable by its exceptional nutritive values (Popović et al., 2013a, 2013b). In our country, cultivation of buckwheat is cultivated on small areas, mostly in hilly-mountain areas of South-western Serbia, but there is an increasing interest of farmers for the cultivation of this crop in recent years (Glamočlija at al., 2011).

Buckwheat is grown for grain, in other words for nut-like fruits. Buckwheat grain has a great nutritional value, almost like a bread grain crops. 1000-grain weight is 24-30 g (Popović et al., 2013a). Buckwheat grains contain about 52.11% starch, 11-12.55% of the total protein, 8.7% of the pulp, 2.23% oil, 11% water and 1.75% of N protein (Popović et al., 2013b, 2013c). The most important ingredients of this plant are flavonoids (Arsić et al., 2008). Grain contains a large amount of indispensable amino acids (EAA), primarily lysine and methionine and dietary protein. Shelled fruits can be used as a food in different ways. Complete grain is used as a nutritive supplement for different stews, while flour is used for preparation of porridge (polenta) or mixed with wheat or rye for preparation of bread with higher digestion value. Because of the beneficial chemical composition, and the absence of adhesive proteins, buckwheat is suitable for diabetics and children diets. Buckwheat can be used as *siderite* to increase natural soil fertility. The highest quality green mass to plough in will be acquired from biomass after flowering, because at that stage it quickly mineralizing the soil and enriches the soil with plant assimilating in a short time (Glamočlija et al., 2011). It is very suitable for crop rotation, because there is no usage of chemical substances for protection (Berenji, 2011, Popović at al., 2013a).

Buckwheat is a plant of modest demands towards environmental conditions; it is also grown on poor soils (Popović at al., 2013a, 2013d, Ikanović at al., 2013). Kreft (1995) pointed out that buckwheat suppresses weeds. The competitive and allelopathic effects of buckwheat towards weeds is better expressed in mountain then lower regions, because cooler summers are more appropriate for buckwheat then thermo-philic weeds (Đukić at al., 2007). Therefore, buckwheat is suitable for organic production.

The goal of this research is to study the analysis of buckwheat production in the world and influence of agro-ecological factors to buckwheat productivity in conditions of Bački Petrovac.

Materials and methods

This paper analyses the buckwheat production parameters in the world during the period from 2010 to 2011. The research is based on the available data already existing in related statistical publications. Data from FAO 2013 were used (http:// faostat.fao.org/). For the calculation of the yield and the size of the area, we used a basic statistical method comprising of the following:

- for calculation of variation degree of area size and yield coefficient of variation (CV) was applied in equation: $C_v = b \cdot 100 / \overline{X}$
- movement of occurrences was calculated using an exponential trend in equation: $Yt = a \cdot b^{xi}$.

We used original data from Institute of Field and Vegetables Crops, Novi Sad. Trials were set up on testing from Institute of Field and Vegetables Crops, located in Bački Petrovac, area in the period 2010-2011, on a soil type carbonated chernozem, sub type loess and loess-like sediments, variety of carbonated ogley, in a conventional system of cultivation, in three repetitions. The subjects of research were the following varieties of buckwheat: Novosadska, Godijevo, Bamby and Češka. In conventional system of cultivation basic machining (deep tillage) and fertilizing with mineral fertilizers 15 x 15 x 15, in a quantity of 200 kg/ha was performed in an optimal time-line. During the field trials standard technology of cultivation was applied. Composition of plants was 50 x 4 cm in an interlinear distance of 50 cm and depth of 3 cm. The size of basic plot was 10 m^2. Pre-sowing preparations and sowing were completed in optimal time-line. Harvest was performed manually in technological ripeness.

Soil in trial plot was of mild alkali reaction (pH in KCl=7.48), with a lot of humus 2.42 %, medium provided with nitrogen 0.184 %, highly provided with available phosphorus (33.7 mg/100 g of soil) and well provided with potassium (20.5 mg/100 g of soil).

Grain yield of buckwheat was determined by measuring from every basic parcel and calculated to 13 % of moisture. Analysis of acquired experimental data was performed with descriptive and analytical statistics with use of statistical package STATISTICA 10 for Windows. The testing of significance of differences between calculated average values of analysed factors (year and genotype) was performed with application of two-factor model of variant analysis. All evaluations of significance ware performed on the basis of LSD-test for a level of significance 0.05 % and 0.01 %.

Results and discussion

Buckwheat is planted to an average of 2.113 million hectares worldwide. There is an increasing trend of areas under buckwheat with a rate of 22.46% per year and variation (CV = 14.28%), Table 1.

The highest production of buckwheat of 93.67 % in the world was in Europe and on Asian continent (1,133 ha, 846,799 ha), that is 53.61 % and 40.06 %, respectively.

The lead producers Europe and Asia have a tendency to increase areas with rate of 38.71 % and 5.01 % respectively. Adequate participation by continents, the most significant producers of buckwheat in the world are: China (34.25 %), Russia (32.43 %), Ukraine (11.46 %) and have trend of increase of areas per rate of 6.85 %, 47.90 % and 43.86 %. While major producers of buckwheat are: Poland (3.38 %), USA (3.68 %), Japan (2.46 %), Brazil (2.17 %) and France (1.61 %). Unlike the most significant world producers, Poland, USA and France have a trend of decreasing the buckwheat production areas, Table 1.

Table 1. Area under buckwheat in the world, 2010-2011

Area (ha)	2010	2011	Average values	Rate of change, %	CV, %	Share, %
Continents						
World	1900409	2327409	2113909	22,46	14,28	100
Europe	949486	1317103	1133294	38,72	22,94	53,61
Asia	816800	876798	846799	7,37	5,01	40,06
America	124169	123244	123706	-0,74	0,52	5,85
North America	78269	77244	77756	-1,31	0,93	3,68
South America	45900	46000	45950	0,21	0,16	2,18
Africa	10030	10264	10147	1,63	2,33	0,48
Countries						
China	700000	748000	724000	6,85	4,68	34,25
Russian	570100	843200	706650	47,90	27,33	33,43
Ukraine	198600	285700	242150	43,86	25,43	11,46
Poland	88525	75768	82146	-14,41	10,98	3,88
USA	78269	77244	77756	-1,31	0,90	3,68
Japan	47700	56400	52050	18,23	11,82	2,46
Brazil	45900	46000	45950	0,21	0,15	2,17
France	36900	31000	33950	-15,98	12,28	1,61
Slovenia	1198	1180	1189	-1,50	1,07	0,06

Source: faostat.fao.org, 2013.

Average yield worldwide in the period 2010-2012 was 913 kg ha^{-1} in total and have a tendency to increase with rate of 17.12 %. In 2011, a higher yield of 144 kg ha^{-1} was produced. Around 68 % buckwheat hectarage is located in Russia and China. Ukraine takes the third place per planted hectarage, followed by significant buckwheat producers Poland, USA, Brazil, Japan, France, etc., Table 2.

The highest average yield per continents was produced in America with 1,115 kg ha^{-1}. Average yield in America was varying from 1,237 kg ha^{-1} in South America to 1,042 kg ha^{-1} in North America. The lowest yield was produced in Africa of 848 kg ha^{-1} and Asia 890 kg ha^{-1}. The highest average yield in the world was produced France (3,173 kg ha^{-1}), followed by Brazil (1,237 kg ha^{-1}), Poland (1,162 kg ha^{-1}), Slovenia (1,099 kg ha^{-1}) and USA (1,042 kg ha^{-1}), Table 2.

Table 2. Average yield of buckwheat in the world, 2010-2011

Yield (kg ha^{-1})	2010	2011	Average	Rate of change, %	CV, %
Continents					
World	841	985	913	17,12	11,15
Europe	778	1027	902	32,01	19,51
Asia	872	908	890	4,12	2,86
America	1122	1108	1115	-1,24	0,88
North America	1055	1029	1042	-2,46	1,76
South America	1.235	1.239	1237	0,32	0,22
Africa	820	876	848	6,83	4,66
Countries					
China	595	949	772	59,49	32,42
Russian	928	962	945	3,66	2,54
Ukraine	673	985	829	46,35	26,61
Poland	1098	1227	1162	11,74	7,85
USA	1055	1029	1042	-2,46	1,76
Japan	622	567	614	-8,84	6,54
Brazil	1235	1239	1237	0,32	0,22
France	3411	2935	3173	-13,95	10,26
Slovenia	1143	1055	1099	-7,69	5,66

Source: faostat.fao.org, 2013.

In our country, buckwheat is cultivated in small areas, mostly in hilly-mountain areas of south-western Serbia. Buckwheat was cultivated at the Institute of Field and Vegetables Crops, Department for alternative plant species, which is located in Bački Petrovac.

Production of buckwheat in Serbia

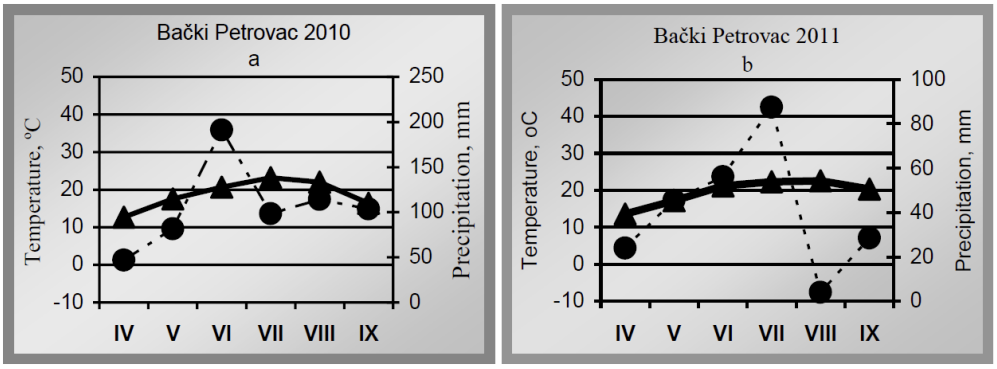
Agro-ecological conditions

Considering that weather conditions are changeable, unstable and unpredictable in certain areas for production of seed, it is necessary to follow varying of outer factors, in order to timely temper climate limiting factors with agro-technical measures (Popović et al., 2011). Data for analysis of weather conditions was used from weather station Bački Petrovac.

More favourable year for a buckwheat production was 2010 (T = 18.76 °C, P = 636 mm), while unfavourable year was 2011 (T = 19.53 °C, P = 245.6 mm). Recorded average temperature (T) in 2011 was 19.53 °C and was 0.77 °C higher compared to 2010 while quantity of precipitation (P) was lower for 390.4 mm in relation to 2010.

Limiting factor in 2011 was a deficiency and unfavourable disposition of precipitation in soil during the vegetation period (Graph 1a and 1b).

Graph 1a and 1b. Average temperature and total precipitation (2010-2011), B. Petrovac



Source: Meteorological station Bački Petrovac, 2010-2011

Buckwheat grain yield

Average yield of buckwheat in Bački Petrovac for tested varieties in 2010-2011 amounted to 2,263 kg ha^{-1} in average. Yield varied from 1,733 kg ha^{-1} (2011) to 2,792 kg ha^{-1} (2010). The most favourable year for buckwheat production was 2010. Produced buckwheat yield for all tested genotypes in 2010 were significantly higher in relation to 2011 ($p<0.01$). Analysis of average grain yield per varieties showed that Novosadska variety produced statistically significantly higher yield (2,626 kg ha^{-1}) in relation to other tested varieties ($p<0.05$). Year and genotype showed a great significance ($p< 0.01$), Table 3.

Table 3. Buckwheat yields (2010-2011), Bački Petrovac

Source of variation	Yield, 2010 (kg ha^{-1})	Yield, 2011 (kg ha^{-1})	Average (kg ha^{-1})	CV, %
Variety				
Novosadska	2996	2257	2626	19,89
Godijevo	2497	2103	2300	11,80
Bamby	2216	1412	1814	31,34
Češka	3462	1161	2312	70,39
Average	2792	1733	2263	33,09
Indicator	**LSD test**	**Year**	**Genotype**	**Interaction**
Yield	0.05	191	270	360
	0.01	264	373	527

Source: Original data from Institute of Field and Vegetables Crops, Novi Sad, 2010 -2011.

Buckwheat varieties Novosadska and Godijevo produced the highest stability of yield, while variety Češka had the highest oscillations (Cv= 70.39 %). Variety Bamby in researched period produced statistically significantly lower yield in relation to other tested varieties, $p<0.01$. Interaction of year x genotype has shown a great significance, $p< 0.05$, Table 3.

Weather conditions significantly influenced yield quantity during the researched period. In 2010, all tested genotypes produced exceptionally high yield, which was contributed by sufficient amount of precipitation, balanced allocation, favourable temperatures and proper use of cultural methods. In the same year, the genetic potential of varieties became prominent. Novosadska, Česka and Godijevo varieties were leading in trial fields of Bački Petrovac area.

According to et al (2010), average grain yield of buckwheat from Novosadska variety was in range from 2,216 kg ha^{-1} to 3,660 kg ha^{-1} in favorable years. In given ecological conditions Prekmurska, Česka, Darja and Čelebica varieties were notable.

According to the research results, it is apparent that Serbia can successfully produce buckwheat, because the average yield of buckwheat was higher than the average world yield of 1,350 kg ha^{-1}. It is important to mention that buckwheat belongs to a group of melliferous plants and presents an excellent honey-bee pasture. The flowers are rich with nectar. Blooming is successive and lasts a long period of time. There can be up to 2,000 flowers on one plant. From one hectare of buckwheat 100 - 400 kg of therapeutic honey can be produced (Glamočlija et al., 2011).

A variety of natural conditions and resources allow the use of various agricultural production systems (Popović et al., 2012). In addition, buckwheat is suitable for crop rotation (Nikolić et al., 2010). Chemical substances are not used as a protection measure on buckwheat. Buckwheat has a short vegetation period; it is resistant to drought, therefore, it can be cultivated as a stubble crop. Buckwheat is a plant of modest demands towards environmental conditions.

Conclusion

Based on the results attained during the research we can conclude the following:

- During the period of research buckwheat was planted on approximately 2.113 million ha in the world. Average areas of buckwheat in the world and yield have a trend of increase. Average world yield was 913 kg ha^{-1} and there was a recorded trend of increase of 17.12 % and great stability (Cv= 11.15 %).
- The highest production of buckwheat in the world of 93.67 % was realized in Europe and Asian. The most significant buckwheat producers in the world are: China (34.25 %), Russia (32.43 %) and Ukraine (11.46 %).
- Average buckwheat yield produced in Bački Petrovac for tested varieties in 2010-2011, amounted to average of 2,263 kg ha^{-1}. Genotype, year and their interaction in 2010-2011 showed statistical significance. More favourable year for buckwheat production was 2010. Statistically significantly higher yield was produced in 2010 in comparison to 2011.
- Analysis of average buckwheat yield in the period 2010-2011 showed that Novosadska variety produced statistically significantly higher yield in relation to other tested varieties.

- Buckwheat can successfully be produced in Serbia because buckwheat yield was significantly higher than average world yield of 1,350 kg ha^{-1}.

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ANALIZA PROIZVODNJE HELJDE U SVETU I U SRBIJI[9]

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Sažetak

U svetu je, u periodu 2010-2011., pod usevom heljde bilo zasejano godišnje u proseku oko 2,113 miliona ha. Prosečni prinosi heljde u posmatranom periodu iznosili su 913 kg ha^{-1}. Površine i prinosi beleže trend rasta po stopi od 22,46 % i 17,12% godišnje. Najznačajni proizvođači heljde u svetu su: Kina, Rusija i Ukrajina. U Srbiji se heljda proizvodi na malim površinama.

U radu su prikazani i rezultati ispitivanja četiri sorte heljde, proizvedene na parcelama Instituta za ratarstvo i povrtarstvo: Novosadska, Godijevo, Bamby i Češka. Analiza prosečnih prinosa pokazala je da je sorta Novosadska ostvarila statistički značajno viši prinos (2626 kg ha^{-1}) u odnosu na ostale ispitivane sorte ($p < 0,05$).

Iz prikazanih rezulata vidimo da su prinosi heljde u Srbiji značajno viši u odnosu na prosečne svetske prinose što nam govori da se ova gajena biljka može uspešno proizvoditi i u našim agroekološkim uslovima gajenja.

Ključne reči: *heljda-Fagopyrum esculentum, površine, prinos, svet, Srbija.*

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ECONOMIC CHARACTERISTICS OF CONCRETE PRODUCTION FROM FLY ASH AS A WAY OF LAND RECULTIVATION[1]

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Summary

Application of fly ash in the construction industry is particularly significant in the terms of environmental protection and in the terms of improvement opportunities of certain properties of cement mortar and concrete. In addition to this, it is possible to perform the recultivation of significant area of agricultural land. Concrete production precedes the production of lightweight aggregate which is then used as an aggregate. Calculated costs of concrete production using lightweight aggregate were 70.52 €/m³. Most of these costs are energy costs in the sum of 85% of total costs. In the situation when the costs of concrete production using lightweight aggregate are compared to the concrete price at the market, or produced with the use of construction gravel, estimation of the economic viability gives a negative result. This result is caused by the high cost of the aggregate. The observed calculation did not include an improved thermal-insulating property of concrete and reduce pollution through binding of waste ash. According to this, final assessment can only be made after extensive technological, macroeconomic and environmental analysis. Economic analysis should be primarily based on the value of land that can be recultivation in this way.

Key words: *fly ash, agriculture land, recultivation, concrete production.*

JEL: *Q32, R51*

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Introduction

The main limiting factor in the development of human society is the reduction of reserves of non-renewable mineral resources and energy, where agricultural land is particularly important. Land is one of the most important natural resource. Plants which were bred on agricultural land are transforming solar energy into food and raw materials. In addition, preservation of soil to protect genetic resources and all forms of life on our planet purify and detoxify the water. The land is in the interaction with the atmosphere through absorption and broadcasting in gaseous and solid state. Land Conservation provides essential habitat for humans, plants and animals and contributes functioning and stability of the food chain. In this way, it protects the diversity of life, affecting the global cycles and balance on Earth (Hadžić et al, 2002). Land users, policy makers and the research community, can foster perceptions that degradation of land is the problem that does not directly apply to them (Dalal Clayton, Bass, 2009).

This leads to the development of environmental awareness on a global level, although this is not yet sufficient to achieve a significant impact on the objectives of development, which are still determined by the need for constant growth in consumption. Better knowledge of the change of living environment, with the climate change as most significant, leads to the concern of humankind over the issue of their survival. The modern lifestyle requires a large amount of easily available and cheap energy. A significant part of the environmental problems is related to the construction, maintenance and use of facilities. According to estimates, about 50% of the total energy produced is consumed in residential and commercial buildings. Of that, 69% of the energy is consumed in temperature maintaining and ventilation, 15% for water heating, the lighting and electrical devices about 11% and 5% for cooking. The largest emitters of greenhouse gases are the United States and China. Whereas the U.S. comprises 5% of the world population, but currently spend about 26% of the total energy. The growth of China argues its high percentage of emissions through its recent industrial development, and while other countries developed and polluted, they were not big emitters. China and the overall Asia are currently in an economic expansion, but also turning to the production system for the use of renewable energy sources, in order to be competitive and participate in the global market (http://esttp.org/cms). In China large amount of construction sites, leads to the deterioration of land resources and other environmental problems (Gar On Yeh, Li, 1999).

Proper management of the construction industry is of great importance since it consumes 60% of the raw material extracted from the lithosphere, and the construction goes 24% of a given amount (Wadel, 2009). In addition, previous studies have shown that the construction industry has to uphold sustainability in a great extent and to always take into account the impact on the environment (Speth, 1990; Ehrlich, Ehrlich, 1990) especially when it comes to the destruction of agricultural land.

Amounts of fly ash generated by burning coal in power plants are both in the world and in Serbia, serious economic but primarily environmental problem. Amount of ash that is deposited annually is measured in millions of tones. In Serbia every year occur between 6 and 7 million tons of fly ash. Fly ash landfill covers significant areas of arable land,

about 1800 ha (http://www.eps.rs/ ecology/zastita.htm). Currently in Serbia, as well as in the world, only a portion of the produced fly ash is used as a pozzolanic additive in cement and concrete (Ilić et al., 2003). Exploitation of this waste as secondary raw materials in the production process imposed as the only viable solution. It is clear that such large quantities of fly ash can only be used in the construction and building materials industry (Baščarević et al., 2006).

Material and methods

Analysis of the economic characteristics of the plant for the production of concrete is based on the calculation of the investment. It is performed on the basis of the preliminary technical - technological project. Since it is not possible to determine the market price of the lightweight aggregate, costs of production are used in the calculation (Zekić, Bačkalić, 2013). Cost calculation is based on determining the total cost (Jakovčević, 2008). Amortization is calculated in accordance with the estimated investment and superior shelf life of certain assets. Salaries were calculated according to the average wage in the Republic of Serbia, in accordance with the required qualifications. The costs of consumed energy are determined in accordance with the pending charges and market prices. The cost of maintaining the facilities and equipment are accounted by empirical standards. The opportunity cost of financing and land use and insurance costs are not calculated.

Results and discussion

The scientific understanding and prevention of the land degradation in the past are based on understanding institutional, sectoral, financial, legal and scientific obstacles. On the other hand, it is clear that the degradation of agricultural land is an obstacle to the creation of the sustainable development of society. The solution to these problems includes several sectors and disciplines (Akhtar Schuster et al, 2011).

Construction industry is greatly responsible of land degradation. The problem of preservation and reclamation of agricultural land must be viewed through the development of sustainable technologies in the production of building materials. Land degradation cannot be judged separately of its economic, environmental and cultural context (Warren, 2002).

Concrete is the most widely used construction material. Concrete is a construction material that is made of cement, aggregate or gravel and sand and water. The term “concrete” means a broad range of artificial construction materials of the composite type which are obtained by agglomeration of the different types of grain aggregates. Undoubtedly, widest application has concrete where the cement is used as a binder. Concrete is a material that is the most used of all artificial materials in the world. It is used for making roads, building, foundations, bridges, blocks, etc. Using waste materials in concrete production can reduce the currently very prominent problem of waste. One of the potentially reusable wastes is fly ash from power plants. During the combustion of ground coal in boilers of thermal power plants, ash particles that come along with the flue gases are collected in electrostatic filters. This is called a fly ash and represents approximately 85% of the total amount of ash in thermal

power plants. Fly ash has specific characteristics that are significantly different from other industrial by-products used as additives in the cement industry. Beside this, variations of these characteristics are much higher than, for example, of the blast furnaces or filter SiO2 dust, because they depend on the type and quality of used coal and technological conditions of burning (temperature) and cooling mode of fly ash particles (Baščarević et al., 2006). World production of fly ash is about 700 million tons per year, while only 6% of this waste material is used in the production of cement (Jozić, 2007; Wong et al., 2004) while the remaining disposed with almost irreversible destruction of agricultural land. In addition, it is used for roads, as a fraction of the support layer, making building bricks, ceramics, glass ceramics and tiles and for the stabilization and solidification of industrial waste (Jovanović et al., 2006). Amounts of ash in this way consumed are insufficient for a permanent solution to the problem of ash landfills so that in each case it is necessary to look for a new ways of use so the use of fly ash as a construction material should be the primary purpose.

The selection of construction materials for certain purposes, as a rule, is carried out on the basis of the functional, technical and financial size. However, the introduction of the concept of sustainability and sustainable development as well as decision-making criteria in the past few decades changed the classical approach to the evaluation of building materials.

Wide application of fly ash as a raw material for the production of building materials, in addition to the above mentioned benefits, to some extent could influence the reduction of unemployment in rural areas where the landfill of ash is typically found. The unemployment problem in the past was latent and concealed within social enterprises and family farms. Today, changes in the social system and the ownership structure of the economy make unemployment prominent problem. The answer to the problem of unemployment among the rural regions is necessary to find in the specific form of rural development (Zekić, Ranogajec, 2012).

Economic analysis of concrete production involves the use of lightweight aggregate which should gain concrete with improved thermal insulation properties (Zekić, Bačkalić, 2013). Concrete production is based on the composition and cost of materials required for making of concrete brand 20 given in the following table.

Table 1. Cost calculation of materials for making concrete brand 20

Description	Quantity	Unit	Price (€/unit)	Value (€)
Aggregate	1,35	m^3	70,52	95,20
Cement	0,3	t	89,00	26,70
Water	0,18	m^3	0,74	0,13
Total				**122,03**

Source: calculation by authors

In addition, the cost calculation of material is also performed for the concrete brand 30 and it is shown in the following table.

Table 2. Cost calculation of materials for making concrete brand 30

Description	Quantity	Unit	Price (€/unit)	Value (€)
Aggregate	1,35	m^3	70,52	92,73
Cement	0,335	t	89,00	29,82
Water	0,18	m^3	0,74	0,13
Total				**122,68**

Source: calculation by authors

In line with the aim of research is projected plant for the production of concrete using lightweight aggregate with capacity of 80 t/h. Total investment in the plant for the production of concrete is approximately 2.6 million €, of which 1.45 million € is for equipment, while 1.15 million € makes investments in facilities and utility equipment. The calculation of amortization costs is shown in the following table.

Table 3. Calculation of amortization costs (€)

Description	Value	Rate	Amount
Facilities and utility equipment	1.150.000,00	2,50%	28.750,00
Equipment	1.450.000,00	8,00%	116.000,00
Total	**2.600.000,00**		**144.750,00**

Source: calculation by authors

An estimation of the observed technology can be made only by a complete investment analysis. Only in this way it is possible to reach the value of investments that an investor can invest in a given plant, or costs of production that can be covered by the revenues.

Plan of the plant work is based on the duration of the shift from 7.30 h, six working days a week, two production shifts per day. The plan includes one shift a week for overhaul. In accordance with this, plan includes 11 production shifts per week and fifty working weeks in a year. Calculation of costs for salaries plans constantly engaging 9 people. The calculation of salary costs is shown in the following table.

Table 4. Calculation of salary costs (€)

Description	Number of employees	Net salary	Gross salary	Total
Production manager	1	600	990	11.880,00
Manager	2	500	825	9.900,00
Workers	6	500	825	9.900,00
Total	**9**			**31.680,00**

Source: calculation by authors

Consumptions of raw materials and energy are calculated on an annual output of 33,000 tons of aggregates. Planned specific power consumption 1.1 kWh/t. Water consumption is 0,18 m^3/t. The calculation of production costs is shown in the following table.

Table 5. Calculation of concrete production (€)

Description	Type of concrete	
	MB 20	**MB 30**
Material	122,03	122,68
Aggregate	*95,20*	*92,73*
Cement	*26,70*	*29,82*
Water	*0,13*	*0,13*
Amortization	0,44	0,44
Salary	0,10	0,10
Maintenance	0,16	0,16
Costs of energy	0,12	0,12
Other costs	0,10	0,10
Total costs	**122,95**	**123,59**
Sale price	52,00	58,00
Result	**-70,95**	**-65,59**

Source: calculation by authors

The total planned production is 33.000 m3. Based on the planned production and actual expenses can be derived basic economic indicators. The amount of calculated costs of concrete production using lightweight aggregate are 122.95 or 123.59 € /m^3. In doing so, most of the costs are the costs of materials, which in the sum are over 99% of total costs. In the situation when the costs of concrete production using lightweight aggregate are compared to the concrete price at the market, or produced with the use of construction gravel, estimation of the economic viability gives a negative result. This result is caused by the high price of used units. Price of construction gravel on the market is 18.00 €/t, which is much lower compared to the lightweight aggregates.

Conclusion

One of the ways to ensure the preservation of the environment is to use materials that are by-products of energy production, as aggregate for mortar and concrete. The use of waste materials not only affects the reduction of environmental pollution, but also has an impact on society resources conservation, because it reduces the exploitation of raw materials and provides a substitute for materials like cement, whose manufacture requires significant amounts of raw materials, energy and resources to produce.

The use of fly ash as a raw material for the production of building materials has a number of advantages: 1) permanently solves the problem of waste and the deterioration of agricultural land, 2) reduces the depletion of other natural resources, 3) creates a basis for energy efficiency through substitution of cement, 4) the recycling process is flexible since the waste can be easily stored and used for several purposes. Therefore, the use of fly ash in building materials and concrete technology solves the problems of industrial waste, environment pollution, the destruction of thousands of acres of land. In doing so, it also offers the possibility of creating new cost-effective building materials. In addition, the economic results should be interpreted bearing in mind that the calculations are evaluated

using the possible recultivation of agricultural land. The consequences of certain types of land degradation can be catastrophic if we forget that the land is one of the most important and irreplaceable resource on earth. Environmental sustainability puts agricultural land at the centre of any development strategy. For this reason, conservation, protection and rational use of agricultural land should be at the centre of any development strategy. There is an urgent need to solve this problem, bearing in mind the trends in increasing land degradation and its links with climate change, biodiversity loss, poverty, health, food, water and energy and general uncertainty.

The production costs of concrete obtained with the use of lightweight aggregates is significantly higher than the current market price. In accordance with this, current application of concrete the produced in the described manner is not economical. During this assessment it is necessary to bear in mind that the calculation did not include the observed enhanced thermal-insulating properties of concrete and pollution reduction through binding of fly ash. In accordance with this final assessment can only be made after extensive technological and macroeconomic analysis.

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EKONOMSKA OBELEŽJA PROIZVODNJE BETONA IZ ELEKTROFILTERSKOG PEPELA KAO NAČIN ZA REKULTIVACIJU POLJOPRIVREDNOG ZEMLJIŠTA

Vladislav Zekić[6], Nedeljko Tica[7], Dragan Milić[8], Zoran Bačkalić[9]

Rezime

Primena elektrofilterskog pepel u građevinarstvu je pre svega značajna sa aspekta zaštite čovekove okoline i sa aspekta mogućnosti poboljšanja određenih svojstva cementnih maltera i betona. Pored toga moguće je izvršiti rekultivaciju značajne površine poljoprivrednog zemljišta. Proizvodnji betona prethodi proizvodnja lakog agregata koji se potom koristi kao agregat. Obračunati troškovi proizvodnje betona uz korišćenje lakog agregata iznose 70,52 €/m³. Prilikom toga, najveći deo troškova čine troškovi energije koji u zbiru iznose 85% ukupnih troškova. U slučaju da se troškovi proizvodnje betona uz korišćenje lakog agregata porede sa cenom betona na komercijalnom tržištu, odnosno proizvedenog uz korišćenje građevinskog šljunka, ocena ekonomske isplativosti daje negativan rezultat. Navedeni rezultat je uslovljen visokim troškovima agregata. Posmatrani obračun nije uključio poboljšane termoizolacione osobine betona i smanjenje zagađenja kroz vezivanje otpadnog elektrofilterskog peska. U skladu sa time konačnu ocenu moguće je dati tek posle opsežne tehnološke, makroekonomske i ekološke analize. Prilikom toga ekonomska analiza prvenstveno treba da se bazira na vrednosti zemljišta koje je moguće rekultivirati na ovaj način.

Ključne reči: *elektrofilterski pepeo, poljoprivredno zemljište, rekultivacija, proizvodnja betona.*

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MANAGING THE HUMAN RESOURCES IN BEER INDUSTRY[1]

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Summary

The human resources' management in business systems comprises a selection of goals, a policy determination, as well as planning, organizing, coordination and control of activities in the field of human resources, by taking over the management actions, in order to achieve the selected goals and to realize the purpose of the management function, as a sub-system of an organization's operation. The basic tasks of the human resources management are: planning, knowledge managing, improvement of work process and quality, control and evaluation of achievements. The paper's goal is to point out to a significance, which it has for its successful business, according to an analysis and description of the most important activities of the human resources' management, as theoretically, as well as practically, in a concrete business system.

Key words: *management, human resources, beer, career development and business improvement.*

JEL: *J53, Q12*

Introduction

The Decani charter, in the reign of Nemanjic dynasty, testifies on a fact that there was well-known obtaining malt from a grain and hopping, which confirms a fact that beer has been consumed at the court, in monasteries and private properties. The beginning of beer industry in Belgrade is related to the year 1872, when the industrialist from Pancevo, Ignjat Weifert, has started the construction of the first steam brewery, which had officially started with production in 1873, under the name „The first steam brewery

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of Djordje Weifert", who had took over the management in that year. In December 1971 was produced a millionth hectolitre of beer, by which was marked an achievement, which had included, in that time, BIP at the top of the European beer producers. At the end of 1998, the BIP had done business as a joint stock company and had done an ownership transformation; the owners of its capital had become over 4000 of stockholders – physical persons, the Joint-stock Fund and PDI Fund, as well as other legal entities. In mid-2003, the capital ownership of 29% had gained the Republic of Serbia, on the bases of conversion of receivables. Aspiring to the best quality of its products and services, the BIP had won 160 golden medals, 7 crystal cups, 3 awards for quality and 3 trophies for top international quality, participating on many domestic and foreign selections, shows and appraisals.

Method of work and data sources

For proving the initial hypothesis of the paper was used different methods in order to satisfy basic methodological requirements – objectivity, reliability, generality and systematicity. In researches was made a turn to a business practice, by using the basic analytical and synthetic methods, and first of all, analyses, syntheses, inductions and deductions. Unavoidable is also using the statistical methods. In clarifying numerous questions were used methods and techniques of the documents analysis, as of a primary, as well as of a secondary matter – of already implemented researches, case studies, monitoring and testing. By applying these methods, it is possible to make a valid realization of scientific and social goal of the research.

While creating the paper, there was used local and foreign professional and scientific literature, the web-site of the Belgrade Beer Industry (BIP), discussions with employees in the company, various reports on business, as well as operational and accounting records.

Sphere of work and equipment of enterprises with the means of production

The scope of an enterprise's work mostly refers to the process of beer production, which divides in three basic phases: getting malt, getting a brewing malt and fermentation and "mellowing" of beer. The production capacities are located in Belgrade, Cacak and Leskovac. There are two organizational units: beer and malt factory, and juice and vinegar factory. The malt-house, which is located in Cacak, is the biggest factory in the Balkans, and it also produces kvass. The largest production of beer in Serbia (351,888 hl) was in 2008, and the lowest (236,640 hl) in 2011, and the beer realization, in hl, was described in the table 1.

Table 1. Realization of beer in hl

No.	Brewery	Location	Beer realization in hl		
			2010	2011	2012
1	Apatinska	Apatin	1,436.916	1,714.037	1,647.636
2	MB	Novi Sad	N/A	N/A	1.230,842
3	Carlsberg Serbia	Celarevo	589,805	585,418	959,159
4	Efes Serbia	Pancevo and Zajecar	587,587	601,108	538,320
5	Trebjesa	Niksic	535,899	508,279	557,887
6	BIP	Belgrade	265,999	236,640	244,726
7	Jagodinska	Jagodina	301,277	200,419	160,103
8	Brewery Nis	Nis	204,677	72,523	101,805
9	Valjevska	Valjevo	149,530	112,517	111,528
10	Industrijska	Zrenjanin	76,953	56,050	41,608
11	Vršačka	Vrsac	187,772	66,138	39,956
12	Pivara	Becej	163,930	91,650	32,057
Total			4,935.464	4,487.272	5,861.153

Source: Internal data.

The size of production by the assortment groups was given in the table 2.

Table 2. Size of production by individual assortment groups (in hectolitres)

Element	2010	2011	2012
Beer	265,999	236,640	244,726
Kvass	7,929	8,991	10,335
Non-carbonated apple juice	12,235	8,883	6,942
Alcohol vinegar	18,687	22,621	23,818

Source: Internal data.

The production, in valuable sense, was given in the table 3.

Table 3. Total income in 000 RSD

Element	2010	2011	2012
Beer	/	/	/
Non-alcoholic beverages	97,129.452.00	150,877.269.00	167,011.415.00
Kvass	69,157.428.00	87,086.269.00	100,852.559.00
Vinegar	83,947.958.00	112,109.409.00	120,278.512.00
Brewery's yeast	4,866.263.00	5,509.94600	5,530.595.00

Source: Internal data.

This joint-stock company is a unique business system, structured by a functional and territorial-market principle, which realizes its business goals through: sales and marketing sector, human resources sector, project management sector, production sector and finances sector. The total number of employees is 530, of which 240 with secondary school background, and 80 with college and university qualification. The most of the totally employed is 41-45 years of age (116), and the smallest number is to 25 years of age (only 6). The highest average earning was realized in 2012, and the lowest in 2010.

Basic characteristics of human resources' management

Managing employees, as the most important resources of the organization, is very complex and multi-dimensional process (Bogićević, 2004). The function of human resources' management mainly comprises the following activities:

- Business analysis, planning supply and demand for human resources, recruiting the candidates for vacancy jobs, selection of candidates for a specific job, training of employees, development of employees, evaluation of employees' performances, remuneration of employees, labour relations and collective negotiations, health and safety protection of employees and managing the process of leaving the organization.

The human resources function in the BIP organizes and conducts within four sectors:

1. Human resources sector,
2. Internal relations sector,
3. Development and education sector,
4. Operative sector of human resources.

All mentioned sectors are responsible for implementation of series of business activities. **Planning the human resources** usually conducts ones a year, along with possible modifications from time planning horizon point of view. The instruments in planning the human resources implement through different methods and techniques.

The BIP uses the human resources planning to set up a potential need for new staff. A job specification gives a review of necessary skills, characteristics and attributes which an individual should have, in order to do some job. There are necessary people with real skills, on every level of the organizational achievement, in order to fit the job into the company's business. Foreseeing demand is a process in which are made evaluations on number, quality and qualification of people who will be probably necessary to the organization, in the planned period.

The annual turnover index or fluctuation of employees sometimes is called a rate of decreasing number of employees, expressed in percentages, and it calculates by a formula:

(number of those who leave a job during one year) / (average number of employees on duty during a year) x 100 = rate of employees' decreasing number in %.

The annual employees turnover index in the Belgrade Beer Industry = (3/530) x 100 = 0.57%

The stability index bases on a number of persons, who could stay at work during some period. Often a number of employees, who had worked for a year, calculate as a percentage of persons on duty a year ago.

(number of employees with one year of work) / (number of employees a year ago) x 100 = stability expressed in %.

The stability index in the Belgrade Beer Industry (BIP) = (25 / 533) x 100 = 4.69 %.

This index neglects the persons who found employments during a year and do not takes into consideration years of employment.

Recruiting and selecting the human resources

Recruiting is a phase of human resources' management, which purpose is to find the human resources, which have all necessary performances for engagement in the organization, at the same time interested for it. In order to come to the candidates selection, there must exist a document on systematization, by which anticipate the obligations of a perpetrator and key tasks, duties and responsibilities of the candidates, on the other hand. A document on jobs systematization is mandatory and statutory. Recruiting is a process, which aims to attract as more candidates as possible, in order a company to have a greater choice. The recruiting sources can be internal and external (Čamilović, Vujić, 2006). It is very important that a vacancy job is posted in adequate, clear and visible way in the organization. In the BIP the most represented is the internal recruiting source, because it is significantly cheaper and due to the possibility of employees' advancement and increase of their satisfaction with a job, which, finally, has better work results.

The most famous recruiting methods are: advertising, employees' credentials, recruiting by the employment agencies, recruiting via colleges and universities, recruiting via the internet. Each of these methods has its advantages, and also faults (Živković, 2012). In the Belgrade Beer Industry (BIP), seasonal workers employ via the employment agencies, and the workers on more responsible positions according to the employees' recommendations.

The selection is a process in which is made a selection among the available candidates for certain job and in which is made a decision on employment of someone who largely satisfies the job's requirements. The basic goal of the selection is to achieve as better as possible adjustment between the job requirements, conditions in which the job is done and the organization's goal, on one hand, and abilities and characteristics of a man, on the other and (Dessler, 2007). There are three groups of criteria, which in the selection process must be satisfied:

- Criteria which have to satisfy the selection methods,
- Criteria which have to be fulfilled by a candidate,
- Criteria which have to be fulfilled by the organization.

The selection methods and instruments for evaluation of the candidates are: A candidate's documentation – situations vacant, CV, questionnaire, interview, psycho-tests, recommendations, medical reports, other instruments of selection and evaluations. The CV often serves as a ground for the interview preparation, while the CV is a document which contains the information on a candidate, necessary to an employer. For collecting data on abilities and personal characteristics of candidates, the widest use and the greatest significance have tests and the interview (Đorđević, Pavić, 2011).

The test represents a measuring instrument, by which people compare by some characteristic, as a measuring subject. There are various types of tests, which divide in two basic groups:

- Psychological tests: capability tests, personality tests, tests of interest, proficiency tests, and
- Tests related to a job: tests of work samples, tests of gaining skills ability, probation.

In the BIP do not apply any of the stated tests, but only the tests to assess the knowledge of health and safety at work.

The interview represents the selection instrument, which goal is to predict a business performance of candidates, according to their verbal responses (Drucker, 2005). There apply different types of the interview, which group according to different criteria, by:

- Form, i.e. a level of structure: structural, semi-structural and non-structural,
- Number of participants: individual, sequential, panel and group,
- Role in the selection process: preliminary, diagnostic and admission,
- Type of questions: situational and behavioural.

In the BIP is represented a team interview, where, besides the experts for interviewing, also participate the potential future colleagues.

Socialization of newly-employed is a process in which a newly-employed worker adjusts to a working environment conditions and to business rules of the whole organization. This is a two-way process in which participate both the organization and the employees. An employee is introduced to a job he is going to do, with work tasks, within a description of his job, with colleagues he is going to work with, with the entire organization business, values and attitudes of organizational culture, background of the organization, business rules, benefits and obligation of the employees. For the socialization process are responsible, as a department for human resources, as well as a department in which the newly-employed person takes up employment. The socialization process ends at the moment when an employee develops a sense of belonging to the organization. In the BIP are two-months-lasting programs of complete enlightenment to orientation, which introduce the newly-employed persons with the company and its values, vision, goals and strategy.

When it is about the employees' training, the previous practice has shown which training and developmental programs ensure the best results, depending on a type and a level of knowledge. Identification of needs for training and development of employees realizes at three levels:

- At the organization level,
- At the individual job level,
- At the individual level, as well as at the groups level.

The goal of training is: to form an effective and quality team, how to evaluate personal characteristics of some team members regularly, how to improve behaviour and mutual communication between the team members and how to provide quality and efficient functioning of the whole team. In practice uses the most 5 training models of employees: functional model, customer model, stencil model, model of corporative university

and virtual model. The BIP tends to provide to its employees, the combination of developmental activities, mostly composed of 70% of tasks and projects at work, 20% of couching and 10% of training. During 2012, the employees had attended many one-month-lasting trainings, after which had got a certificate. The training is assigned for trainees – younger people, with university education – giving them a questionnaire on employees training with numerous questions.

The performance or output can be: job quality, job quantity, acquaintance with a job, interpersonal impact, responsibility, ability and interest to do a job successfully. The employees put note on what is expected of them and what are the realized results. The performances evaluation aims to increase work motivation and to determine a plan of future development of the employees. In evaluation of the performances of the employees use different methods, like: scale assessment, checklists, common ranking, method of comparison in pairs, group ranking, critical event, description, review of fields, managing goals etc. The common mistakes which appear in evaluation are: hallo effect, mild and rigorous evaluation mistakes, central tendency mistake etc. In the BIP is developed software for internal evaluation after the methodology 360°, by which create developmental and training programs, totally adjusted to individual needs of the employees. In the BIP pays special attention to development of employees, as a need of permanent development of human resources, i.e. permanent acquirement of new knowledge and abilities, not only of the newly-employed staff, but of all employees. Practically apply numerous education methods (Đorđević-Boljanović, 2009), which can group:

- Methods of education at work (individual instructions and job rotation, professional practice, training period, mentoring and student practice) and
- Methods of education outside of work, as: lectures, audio-visual technique, programmed learning, learning by computers, conferences and discussions, training in simulated working conditions, case methods and other methods.

Great attention pays to staff development, while the employees have a possibility to progress and to improve professionally.

Systems of earnings (salaries) and strategic aspects of payments

The earning (personal income, salary) represents a money which the employees earn working to an employees, who pays them the earning. A term earning:

- To an employer – means the total amount which he has to pay monthly for an employee – "super gross income".
- To an employee – means the amount which monthly gets "payment to payee in person" as his salary – "net income"
- To legislator – means the amount somewhere between these two amounts – "gross income".

In the BIP, the employees have a right to an adequate earning, which determines in accordance to the law, a collective labour contract and a labour contract. The employees in the BIP retail stores realize a right on earning, other incomes and reimbursement of costs,

based on special conditions, i.e. based on a percentage of sold goods within a month, in accordance with the special contracts, signed with the employee. The earning for the work and time spent at work in the BIP consists of:

- Basic earning,
- Part of earning for a labour output,
- Increased earning.

A part of earning on the basis of labour output consists of fixed and variable part. An employee has a right to increased earnings in the following cases: overtime work 28%, night shifts 40%, for work on holidays (day off) 140%, shift work 26%, on basis of time spent at work for each full year of work realized in labour relation 0.5%, for work in a second shift 5%.

The example of earning calculation in J.S.C. "BIP"- Belgrade in restructuring was given in annex of the contract on employee's work with secondary school background, economic technician (table 4).

Table 4. Calculation of earning

Element	Coefficient of earning	Amount of basic and percentages of increased earning	Amount reduced for taxes and contributions	Gross amount
Basic earning	1.55	19,320.00	29,946.00	41,379.97
Night shifts		30 %		
Shift work		26 %		
Holidays work		120 %		
Overtime work		26 %		
Materialized labour		0.5 %	3,443.79	4,758.70
Variable				
Hot meal in amount of 20% of minimal earning			3,864.00	5,512.13
Recourse				
Total gross earning				51,650.80

Source: Internal data.

The earnings based on performances are more and more popular form of earnings among young people of high education, while they take into consideration a contribution of individuals in achieving the results and they comprise short-term and long-term stimulations. The short-term stimulations aim to instigate the employees to achieve defined short-term results, as: pay rises, bonuses, special premiums, individual and group stimulations. For a period longer than a year are given long-term stimulations, which include: share in ownership, options, gifts in shares under specific conditions, right to profit due to increase of a share price and phantom shares. In the BIP, the managers reward only according to a realized output, through motivation for achieving

the top results at work and commitment to a company. In the BIP does not apply monitoring of individual work results, because the company is in restructuring. In this company, the employees primarily motivate with the earnings and with advancement at work, by paid vacations, workers-sports games, etc.

Labour relations and collective negotiations

The labour relations have been processed in the law on labour and it has studied it as a law relation. The legal regulatory rules in the field of work and labour relations comprises numerous laws: law on labour, law on employment and insurance in case of unemployment, records in labour fields, retirement and disability insurance, safety and health at work, etc. The most important legal act by which determine and realize rights, obligations and responsibilities in mutual relations between the employers and the employees, is the Law on Labour, which applies to all employees in government and public services and companies. A labour contract is a document on which bases the labour relation between an employer and an employee, and precise their mutual rights and obligations and it is in written form. According to the law on labour, the employer should not illegally discriminate a worker on the following grounds: sex, marital status, origin, ethnicity, disability, membership in a trade union, part time work or if a worker is ex-convict, etc. The employees which work for the employer (physical person, i.e. an entrepreneur) have a right, as the other employees, to a **union organizing** according to a clause 5 of the law on labour. The employer is obliged to provide some costs, without compensation, to the management of a representative union, and to the union representatives also a fund of monthly paid hours for performing their functions. In the BIP there are two unions: independent ASNS and the Independent Union. The independent ASNS has 20 members, while the independent union has 293 members; it is representative and has been entered in the Register of Trade Unions. The union "BIP" is a collective member of the Independent Union of those employed in agriculture, food, tobacco industry and water management of Serbia and is a member of the Belgrade Association of Independent Trade Unions. This union is a legal entity and it engages itself on realization and protection of members' rights based on work. In regard to the previously mentioned, the collective negotiation is an organized process, which preceds to signing the collective contracts between an employer and the employees. The employees are led by the representative union of the organization and the purpose of negotiation between the unions, i.e. the employees and the employers' association, analyses through signing the collective labour contract. The most important elements of the collective negotiation process are: negotiating behaviour, negotiating power, subjects of the negotiation and termination of the negotiations. By the collective labour contract solves many issues, and it has a legal effect for all persons who belong to a certain group (a collective or some organization), which had signed the contract.

Health, safety and welfare of employees

A care on health protection and safety at work represents one more very important activity of human resources management. Only healthy and safe employees can be satisfied with their position in the organization, and thereby are successful in their work. A purpose of safety at work is a prevention of occupational injuries and professional diseases, i.e. making conditions to prevent the injuries. The firms are obliged to provide work in safe conditions, as well as to train the employees for work in a safe manner (Živković et al., 2013). Employees should be aware of the hazards in their workplace and ways to protect from them. On the other hand, the employees are obliged to do their jobs in a safe manner and in accordance with the rules of safety at work, as well as to use legitimate protective equipment. In the BIP was implemented a program of workers training in the field of fire protection, which contributes to safety improvement and health at work, along with respect of necessary procedures for safe work on electrical-energy facilities and in offices. The training carries out every third year, while practical and theoretical examination carry out every year. One of the most significant measures is a compulsory use of PPE (equipment), which the workers get every year, which have caused a small number of injuries at work. In this company carry out regularly and according to a plan, the programs of health protection, rehabilitation and recreation of workers, which include a systematic medical examination, spa treatments, recreational excursions and sports-recreational activities, aiming to increase psycho-physical abilities of the employees, as well as the other programs for liquidation and minimization of emergencies' and natural disasters' consequences.

Complaints, discipline, retention of employees and leaving the organization

The right to appeal is guaranteed by the Constitution and it falls into the basic civil rights. A discipline is regulation of human activities due to realization of controlled results and it includes: managerial, team and self-discipline. Each company have rules which have to be obeyed, and which refer to different types of behaviour, for which, if not obeyed, follows typical forms of penalties. In the BIP apply all determined forms of penalties, in a way that a complaint receives in a legal department and there makes a decision if an employee will be penalized or not and decides on a type of a penalty. Key characteristics of complaints procedure are righteousness, procedural steps and speed of settlement. **The employees' retention** is a service which decreases fluctuation on key positions, in order it identifies the employees where there is more likely they will leave the company within a year. The reasons for which people voluntarily leave the organization are: external factors, functional turn, attraction and denial factors. In the BIP, the employees keep by growth of an employee's life standard, and better possibilities to improve in a career.

Leaving the organization can be defined as a termination of membership of an employee employed in the organization. Leaving the company by an employee can be willingly or unwillingly by an employer. Forms of willingly leaving of the company are: labour relation termination by an employee and retirement. The forms of unwillingly leaving

of the company are: labour relation termination by an employer and laying-off the employees as a manpower redundancy. During past years, in fast changes conditions, the companies have faced a need to manage systematically the issue of employees' fluctuation. On a fluctuation rate influence the factors like: devotion of the employees to the company, stress at work and a level of education. On the other hand, on longer staying of the employees in the organization affect the factors, like; marital status, a larger number of dependents, duration of years of employment and age. In the BIP, the employees leave the organization due to personal motives, like better salaries, better working conditions, possibility for advancement in some other company, less distance to work, etc.

Pension (forms of pensions) is a monthly compensation to which an individual has a right on the basis of a retirement, disability and death insurance, under the conditions determined by the law. Depending on the conditions under which the retirement was gained, the pension can be an old-age pension, disability pension or a family pension. The BIP had founded the first voluntary pension fund in Serbia and had been licensed by the National Bank of Serbia in 2001. The Voluntary Pension Fund represents a simple and available way of saving, which has been under multiple supervision and control of the National Bank of Serbia. To a voluntary pension fund's pension does not affect duration of the years of employment, and its negotiation does not terminate a right to a state pension. In the voluntary pension funds, the whole fund's possessions are only the fund members' ownership, proportional to their investments. In the BIP, the employer is obliged to pay off to an employee: a dismissal wage, reimbursement of funeral expenses in case of death of an immediate family, compensation for injuries at work or professional diseases, jubilee awards to the employees for 10, 20, 30, 35 and 40 years of continuous work, solidarity for help in case of child's birth and so on.

Benefits represent material compensations by which the companies indirectly motivate the employees. A right to use benefits is not regulated by the contract between personnel and the employers, but it acquires from belonging to the company and, through them the firms try to attract and keep quality and competent people. The benefits represent concessions above a base salary and incentive earnings and their height does not depend on the performance of employees. The benefits increasingly become a matter of strategy of the company aiming to compete with a competition. All benefits can be classified in three groups: safety and health benefits, free time benefits and services to employees.

Table 5. Types of benefits

Types of benefits		
Safety and health benefits	**Free time benefits**	**Services to employees**
Retirement insurance	Vacations	Scholarships
Health insurance	Holidays	Employees' credits
Life insurance	Excused absences	Hot meals
Sick leave	Paid leaves	Company's cars
Social security	Paid leave for professional training	Professional cloths

Types of benefits		
Safety and health benefits	**Free time benefits**	**Services to employees**
Employer's liability insurance	Paid time of additional education	Transport
Dismissal wages etc.		Legal services
		Care for children and old persons
		Recreation and health programs
		Unpaid leave due to family issues

Source: Internal data.

With realization of benefits programs and by solidarity payments, the company shows understanding for different needs of employees.

Conclusion

According to the previous review can determine that the BIP in its supply has four basic production programs: beer production, production of non-alcoholic beverages, production of brewing malt and alcoholic vinegar. Besides, it has also the additional program, which encircles the production of dried brewing yeast, malt sprouts, and it has a utility which comprises hospitability – beer-houses retail, wholesale, malting services, transport, pouring and technical-technological services. The activities in the BIP can divide into 3 programs:

- Production – it realizes according to regulated and determined technological procedure. The equipment, devices and lines for beer production are in good shape, and it is about the program SIMATIK 5, which provides measuring regulation and equipment in order to track and control the production process,
- Bottling (pouring the products) – is realized on the line KRONES, which has computerized machines and equipment. The beer durability achieves by pasteurization. Pouring of non-alcoholic beverages realizes on the line KOSME, which devices and equipment are computerized and supplied by tracking system and a system for control of pouring process,
- Packing products is adjusted to requirements of marketing and market. There is installed equipment for packing the products and different packing dimensions, with different number of units and label marked, on which are all necessary information regulated by the standard.

The important characteristic of the company is its territorial dislocation. The human resources management is a business function of the company, where all its activities are analyzed: planning, recruiting selections, socialization, directing, training and education, evaluation of employees' performances, their advancement and motivation, care of health and safety to manage career and laying-off – retirement of employees. Although all activities are important, there was noticed that in the BIP, the process of employees' selection and their education, as well as their further education and career development, have the greatest significance. The BIP has defined key fields of results and output standard

for every organizational level. The Belgrade Beer Industry pays a special attention to personnel development and their additional education, taking into consideration that knowledge is the essential resource, which will make the difference between successful and unsuccessful ones. There is also necessary to make the workplaces rationalization, in sense of determination of deficiency and redundancy of labour in some sectors, as well as solving all problems. It is necessary to set the system of examinations for all employees, on annual basis, and to evaluate work of the employees, in order to set up the models of team work. There was determined by the analysis that it is not enough developed a leadership, that the employees are not, in every organizational unit, acquainted with the essence of changes, that should develop skills of mid-level management through internal education, that should train new associates and to develop goals-orientation, not only activities-orientation, to intensify the communication with the employees and to introduce rules of information transmission and to introduce the adequate awards and valuations for the achieved results.

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UPRAVLJANJE LJUDSKIM RESURSIMA U INDUSTRIJI PIVA

Dragić Živković[5], Suzana Gučanin[6], Zdravko Jež[7]

Rezime

Menadžment ljudskih resursa u poslovnim sistemima obuhvata izbor ciljeva, utvrđivanje politika, kao i planiranje, organizovanje, koordinaciju i kontrolu delatnosti u području ljudskih resursa, i to preuzimanjem upravljačkih akcija radi postizanja izabranih ciljeva i ostvarivanja same svrhe upravljačke funkcije kao podsistema funkcionisanja organizacije. Osnovni zadaci menadžmenta ljudskih resursa su: planiranje, organizovanje, upravljanje znanjem, poboljšanje procesa i kvaliteta rada, kontrola i vrednovanje dostignuća. Cilj rada je da se na osnovu analize i deskripcije najvažnijih aktivnosti menadžmenta ljudskih resursa, kako teorijski, tako i na praktičnom primeru u konkretnom poslovnom sistemu, ukaže na značaj koji on ima za njegovo uspešno poslovanje.

Ključne reči: *menadžment, ljudski resursi, pivo, razvoj karijere i unapređenje poslovanja.*

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THE COMPETITIVENESS OF POLISH AGRICULTURE AFTER ACCESSION TO THE EU

Marek Wigier[1]

Abstract

The purpose of doing business in agriculture is to achieve the best possible economic effect with the available factors of production. Production factors, which are determined by their quantity and quality, create a definite production potential. Socio-economic transformations that took place in Poland in the period of EU membership caused a number of structural changes in the resources and distribution of production factors in agriculture. As compared to other sectors of the economy the changes in the agricultural sector seem relatively the most significant ones. The material presented below includes: a brief presentation of the place and the role of agriculture in the Polish economy, analysis of structural changes in the 2002-2012 period, information concerning economic results of the agricultural sector and financial dimension of public policies for agriculture and conclusions from this assessment referring to the issues of competitiveness and efficiency of the Polish sector.

Key words: *structural changes in agriculture, competitiveness of agriculture, efficiency of agriculture, State aid for agriculture, Common Agricultural Policy.*

JEL: *Q18, Q10*

Introduction and research objectives

Poland's membership in the EU has radically changed the economic conditions of functioning in the Polish agriculture and rural areas. The most important sources of these changes, of course, apart from the European Single Market and macro-economic conditionalities, include Common Agricultural Policy (CAP) and structural funds. Today, we already know that CAP has actually caused an increase in support for agriculture, while structural funds have triggered considerable cash flows intended for modernisation of food economy and rural areas development. As compared to other sectors of the economy the changes in the agricultural sector seem relatively the most significant ones. The research presented below aims at showing the character and pace of changes taking place in economic structures in agriculture under the influence of socio-economic transformations and Poland's membership

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in the EU, as well as those related to CAP implementation and relate them the issues of competitiveness and efficiency of the agricultural sector.

The paper adopts competitiveness and efficiency of Polish farms as indicators of their economic strength. Evaluating competitiveness we take into account the resources of production factors, efficiency of their use, dynamic and direction of structural changes. Wysokińska (Wysokińska, 2001) links competitiveness to efficient use of resources of production factors, as well as structural changes taking place in the economy resulting in increased efficiency of farming. According to Meredyk (Meredyk, 2001) competitiveness is a feature of economic growth and follows directly from the quantity and quality of labour. M. Porter sees competitiveness through the eye of the ability to create conditions favourable for development of the international competitiveness of companies under individual national industries and branches (Porter, 1995). The definition of competitiveness relies more and more often on two interconnected pillars of efficiency and quality, since it is the quality of products that preconditions the prices and possibilities of sales. Numerous authors, such as G. Hamel, C. K. Prahalad, J. Barney, J. Kay, M. Cassone do not define competitiveness although they analyse it in their works. Thus competitiveness analysis can be conducted *ex post* - by assessing the result of competition at a defined moment in time, or *ex ante* - by referring it to a long-term ability to keep or improve the present competitive position.

On the other hand, the economic efficiency is understood as the ratio of achieved effects to the incurred inputs. The economic effect for farms is the income obtained from agricultural activity generated by them, whereas the input is the total labour input expressed in AWU or labour of farm family members in FWU[2]. Many authors commonly use these indicators as measures of economic efficiency of agricultural enterprises (Józwiak, 2009; Goraj, Mańko 2011). However, agricultural enterprises and farms do not usually compete directly with comparable enterprises on foreign markets. Entities that are directly present on international markets and compete there are agri-food processing enterprises and trade enterprises (Ziętara, 2012). Quality and price of the offered products preconditions their tendering strength. They are most of all dependants on raw materials that are delivered by farms and agricultural enterprises. According to Woś the costs of raw materials constitute two-thirds of costs incurred by the food industry (Woś 2003). Although agricultural producers are not directly present on international markets they have an indirect impact on competitiveness of agri-food products.

The following analysis has been performed through the prism of competitiveness of resources allocation. Since farming is based on the assumption those resources are limited and that the choices are made in a rational manner. Thus the main focus has been drawn to production resources (land, labour and capital) referring to their quantity (sometimes also their quality) and agricultural structures influencing the used production potential expressed by resources.

2 AWU (annual work unit) - equivalent of labour input of 1 full-time employee (2,200 man-hour/year). FWU (family work unit) - labour input of farmer and his family members (2,200 man-hour/year).

The analysis has been supplemented with references to the sectoral competitiveness shaped through economic policy instruments (primarily CAP) which directly and indirectly influences the competitive possibilities of agriculture. Statistical data used for analytical purposes in this article were taken from the databases or published materials concerning economic results of farms covered by the FADN[3] accountancy system, macroeconomic data of the Economic Accounts for Agriculture (EAA), results of CAP implementation provided by the Agency for Restructuring and Modernisation of Agriculture (ARMA) as well as literature studies.

Agriculture in the national economy

The position and role of agriculture in economic development depend on the economic situation of the country (Nicholls, 1964). The development of agriculture usually follows the overall economic development of the country (Rostow, 1960). The improvement of agricultural productivity increase food self-sufficiency level, contributes to the growth of agricultural incomes, and thus creates the purchasing power of farmers for the purchase of goods and services. The industrialization of the country determines ultimately about of agricultural development, opportunities and pace of its modernization and outflow of the workforce, which is one of the conditions of its technical modernization. Industrialization causes mass structure-forming processes, a symptom of which is the migration of people from rural to urban area. Technical progress and departure of people from agriculture contribute to improving the performance of other sectors of economy employees, and of work expenses reduction. This happens thus far as long as from agriculture departs the persons whose marginal productivity is negative or below in the other sectors of economy. This phenomenon is beneficial for both agriculture and the entire national economy. When agriculture leaves the people with a positive marginal productivity, farm organization and applied technologies is changing. The mechanism of substitution of labour by capital enables the development of production.

In the years preceding Poland's accession to the EU, in 2004 and the following years structural changes took place in agriculture in the field of employment, utilised agricultural land, production organisation, level of input and progress made. Sometimes they were rather dynamic (e.g. changes in the production structure), on other cases they took place over generations (employment in agriculture). Usually they were a continuation of the already existing trends (sometimes with slight changes in their intensity), however, on other cases their directions changed due to new circumstances. After 2004, multiannual trends were continued which were expressed in a slower decrease in the area of agricultural land, sown area or livestock population. They were accompanied by an increased intensity of plant and animal production, crops and unit efficiency of livestock production.

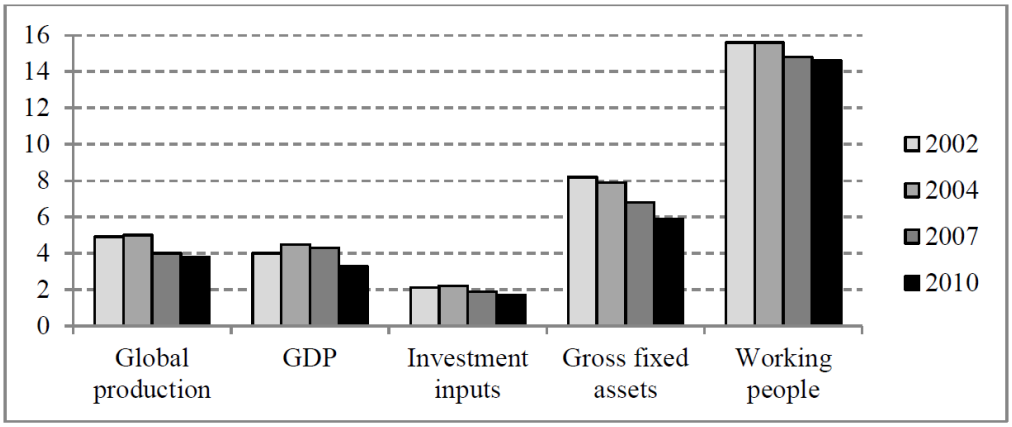
Despite structural changes, sometimes very deep, the Polish agriculture remains an important sector of our Polish economy. This is, primarily, confirmed by the structure of employment and structure of land use. The sector plays an especially important role as it comes to social and economic development of rural areas. Since agriculture uses over

3 Farm Accountancy Data Network.

half of the total area of the country for economic purposes, it sets the main functions and directions of land use and shapes the natural environment and landscape. The agricultural sector remains the place of work for almost 15% of the total number of working people. However, the number of people, working in agriculture points to negative relations between the labour resources and land and capital resources thereby causing low efficiency of labour. On the other hand, from the perspective of Gross Domestic Product (GDP) generation the significance of the agricultural sector in Poland is decreasing. The share of agriculture (including hunting and forestry) in GDP has dropped from ca. 9% in 1990 to 4% in 2003 and 3.3% in 2010. The share of agriculture in replacement and increasing of the assets remains significantly smaller. Investment inputs for this purpose are shaped below 2%, which inevitably leads to further decrease in the role of agriculture as owner of fixed assets in the national economy.

An analysis of labour resources and fixed assets as well as of the share of agriculture in creation of the global product and gross domestic product prove that the productivity of assets is relatively small and that labour productivity in agriculture stagnates (Figure 1). On a country scale, in some regions it still plays an important role, having a strong impact on the level of development and the standard of living of the inhabitants of the regions. In general, agriculture still keeps the traditional character expressed e.g. in fragmented (as compared to such countries as Germany or France) agrarian structure, multi-directional production activity of farms, extensive production techniques, although very radical changes take place also in this scope. These changes are caused primarily by the market economy system and transformation following from CAP instruments and structural policy.

Figure 1. Agriculture in national economy (share in %)



Source: Pracujący w Gospodarce Narodowej (relevant yearbooks), CSO, Warsaw; *Środki* Trwałe w Gospodarce Narodowej (relevant yearbooks), CSO, Warsaw; Statistical Yearbook of the Republic of Poland, CSO, Warsaw 2011; own calculations.

Structural changes in agriculture

In 2002-2010 the land resources of farms have decreased significantly. The total area of land has dropped by ca. 5.5% from 19,325 thousand ha to 18,257 ha, i.e. by over 1 million ha of agricultural land. The decrease has covered only agricultural land and its area has decreased by 1,365 thousand ha (i.e. by 8.1%) from 16,899 thousand ha in 2002 to 15,534 thousand ha in 2010 and this was caused, mainly, by an increase of use outside of agriculture sector abandoned land and the area of grasslands. At the same time, there was an increase in the area of forests and other lands, and or perhaps above all, an increase in area intended for service activities, construction or infrastructure development. The area of agriculture production has decreased by only 415 thousand ha of agricultural land (the aggregated surface of sown area, orchards, meadows and grasslands has dropped from 14,597 thousand ha to 14,182 thousand ha).

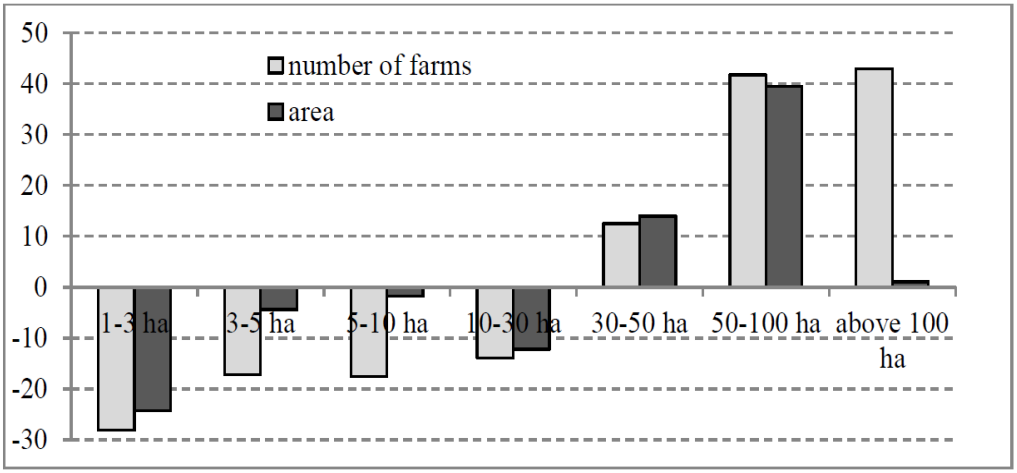
Changes in the area structure of farms have also occurred in the discussed period. The total number of farms has decreased from 2,933 thousand to 2,278 thousand, i.e. by 655 thousand (22%), and the decrease concerned both agricultural parcels (farms up to 1 ha of agricultural land), as well as farms above 1 ha of agricultural land, and the decrease in agricultural parcels amounted to 27%, and in farms above 1 ha of agricultural land – 20% (in 2010 the number of farms above 1 ha of agricultural land was 1,563 thousand, which means a drop as compared to 2002 by 393 thousand). The structural changes were significantly differentiated in individual area groups. The share of farms below 1 ha has also decreased, while there was a simultaneous increase in the share of units above 1 ha (from 66.6 to 68.6%). However, in the second group the changes were multi-directional. The number of farms above 1 ha has decreased by 20% (by 393 thousand), and the number of farms ranging from 1 ha to 30 ha has dropped by 405 thousand, while the number of farms above 30 ha has increased by 12 thousand. A dynamic decrease in the number of the smallest farms (similarly as in the case of agricultural parcels below 1 ha) resulted from not covering some part of land of these farms with direct payments (because of failure to act by their owners or difficulties in proving that agricultural activity is pursued on the lands). The group of farms with the area above 30 ha has increased from 2.6% in 2002 to 4% in 2010, whereas in farms of 30-50 ha the increase amounted to 12.5% and in the group of farms greater than 50 ha of agricultural land – the increase amounted to over 40%. However, in 2010 there were only 63 thousand farms of more than 30 ha of agricultural land. From the perspective of competitive potential the structure of land use is more important than the structure of farms. Changes that took place in this scope are, however, similar in their direction since there was a very significant decrease in agricultural land of the smallest farms (1–2 ha by over 30%), several percent (13.8–17.4%) in the group of farms of 2-20 ha and an increase in the utilised land resources in the farms of more than 30 ha of agricultural land (the greatest by almost 40% in the group of 50–100 ha of agricultural land).

The idea behind economic activity in agriculture, just like in other sectors, is production. Introducing elements of production structure to the analysis of agriculture's productivity results from the fact that the volume of obtained production depends not only on the intensity of involvement of production factors and labour force resources (under the given natural conditions), but also on the area of activity on which these factors were involved (Rudnicki,

1997). However, it is without doubt that structural changes in production are closely related to changes in area structure. In 2002-2010, the number of farms sowing crops has changed by ca. 28% (from 2,007 thousand to 1,449 thousand), and the average sown area has increased by 1/3 to 7.2 ha (by 1.8 ha) (Table 2.13). There was also a drop in the number of farms growing vegetables (by over 80%), potato (by 75%), sugar beet (by 50%) and cereals (by 22%), while the number of farms growing rapeseed (by 100%) and maize (by 20%) increased. Production concentration has been visible both in plant and animal production. The size of an average bovine herd has increased from 5.9 to 11 units (and more than 60% of the population was gathered in herds of more than 20 units), cows from 3.3 to 5.9 units (herds of 10 and more units gathered 67.6% of the population), pigs from 24 to 38 units (herds of more than 500 units gathered 33% of the population). In 2010 herds of more than 20 thousand units gathered over 68.2% of the population of laying hens and over 90% of the population of broilers.

The direction of changes in the number and structure of farms should be deemed positive (Sikorska, 2013). Farms bigger in terms of land (which gather an increasing percentage of agricultural land) are more and more important. In 2002 the number of farms of more than 20 ha of agricultural land amounted to 51 thousand (2.6% of farms of more than 1 ha of agricultural land) and as of 2010 it increased to 63 thousand, but it still is less than 4% of farms of more than 1 ha of agricultural land. In 2002 these farms utilised 5,509 thousand ha of agricultural land (33.4% of agricultural land in farms of more than 1 ha of agricultural land), while in 2010 – 6,039 thousand ha of agricultural land (almost 40% of land resources in farms of more than 1 ha of agricultural land). However, the pace of changes is clearly unsatisfactory (Figure 2).

Figure 2. Changes in the number of farms and area of agricultural land according to the area group in 2002-2012 (in %)



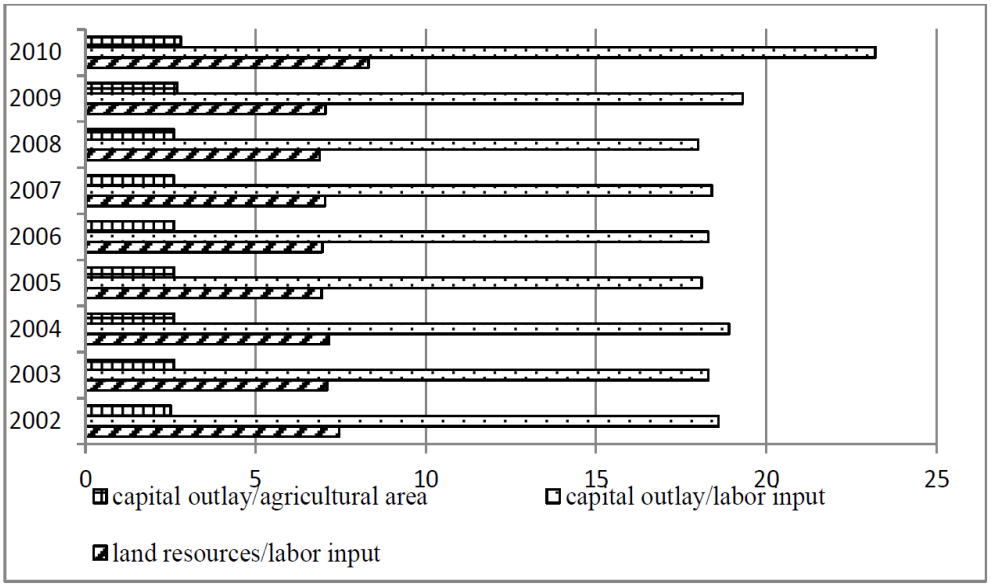
Source: own calculations based on Central Statistical Office data.

The relations showing the provision of the active factor in the production process - i.e. labour, with the two other production factors, namely land and capital give evidence to a

weak competitive position of the Polish agriculture as regards the competitive potential and preordains law efficiency of labour in sectoral terms and relatively low intensity of agricultural production (relation: capital input - land resources) determines rather law productivity of land (Poczta, 2012).

In 2010 the Polish agriculture had at its disposal ca. 8.5% of land resources, it involved 18% of labour input and 5.1% of capital input in the EU-27 agriculture. Although these relations are not favourable, there was, however, a systematic although relatively small improvement in the relation between land resources (area of agricultural land) and labour input (expressed in AWU[4]), or the sum of indirect consumption and depreciation and labour input (Figure 3). In 2010 the area of agricultural land per 1 AWU in Polish agriculture amounted to only 7.7 ha, which was less than half of the value in the EU-27 (16.4 ha). One unit of labour input has used capital input (sum of intermediate consumption and depreciation) with the value of EUR 7.3 thousand, which amounted to only 30% of the average level in the EU-27, while intensity of production measured with capital input per 1 ha of agricultural land has amounted to EUR 941, which corresponded to ca. 60% of the level of these input in EU-27.

Figure 3. Relations between production factors



For the relation calculation was adopted: the total area of arable land (thousands of hectares), labour input (thousands AWU), capital expenditures (intermediate consumption and Depreciation million zł, constant prices of 2005).

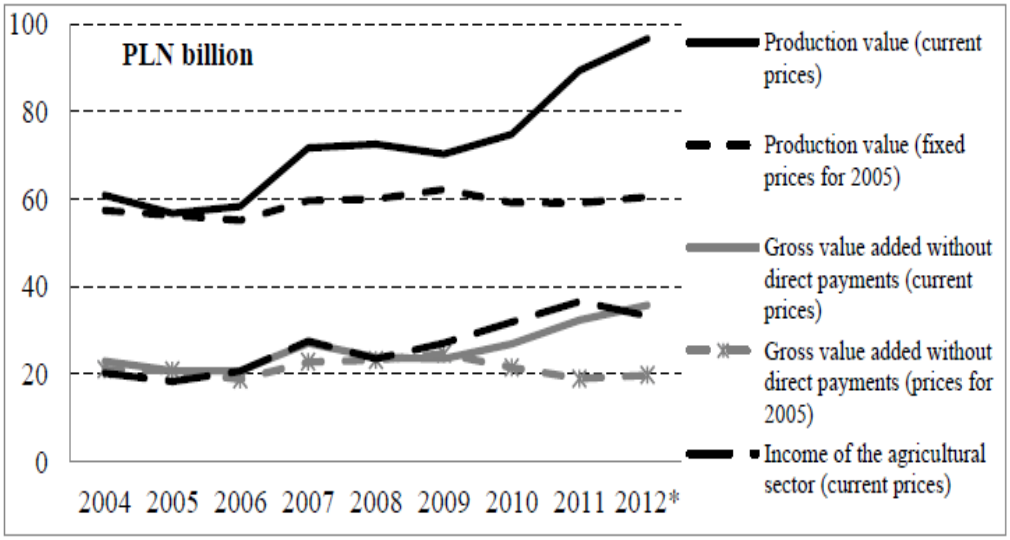
Source: Own calculations based on: Rolnictwo w 2007 r., GUS, Warszawa 2008; Rolnictwo w 2008 r., GUS, Warszawa 2009; PSR 2002 - Systematyka i charakterystyka gospodarstw rolnych, GUS, Warszawa 2003; Raport z wyników – Powszechny Spis Rolny 2010, GUS , Warszawa 2011.

4 AWU (Annual Work Unit) - CSO makes it 2,120 work hours per year (265 days x 8 hours)

Economic results of the agricultural sector

The analyses conducted with the use of Economic Accounts for Agriculture (EAA)[5] (Floriańczyk, 2013) show that in 2004-2012 (i.e. in the years of Poland's membership in the EU) the value of production in the agricultural sector in current prices, excluding payments to products, has increased from almost PLN 61 billion to over PLN 96 billion. And the increase in nominal value of production was especially strong in 2011 and 2012 (Figure 4). The increase in the value of production was linked primarily to the increase in the prices of agricultural products. For comparison, the value of production in fixed prices (2005) in the examined period has increased from PLN 58.0 billion to PLN 60.5 billion, i.e. within the range of 3%. The highest value of production in fixed prices has been observed in 2009 which was linked to the extremely high crops.

Figure 4. The value of production, gross value added without direct payments and income in agriculture in 2004-2012



** estimated data*

Source: Data for EAA.

Gross value added (GVA) is an important indicator of the effects of agriculture. It is the source of replacement of assets and payment for own work, foreign production factors and taxes, as well as possible resources that may be allocated to different objectives. In 2012 the GVA of the agricultural sector without payments to products reached PLN 35.7 billion and was higher by over 50% as compared to 2004. It is the highest value of GVA since the time of the accession to the EU. The comparison of GVA in fixed and current prices shows that a high increase in the latter was related to a stronger increase

5 These are satellite accounts as regards some national accounts and they are made by IAFE-NRI in cooperation with the CSO for the needs of the European Commission.

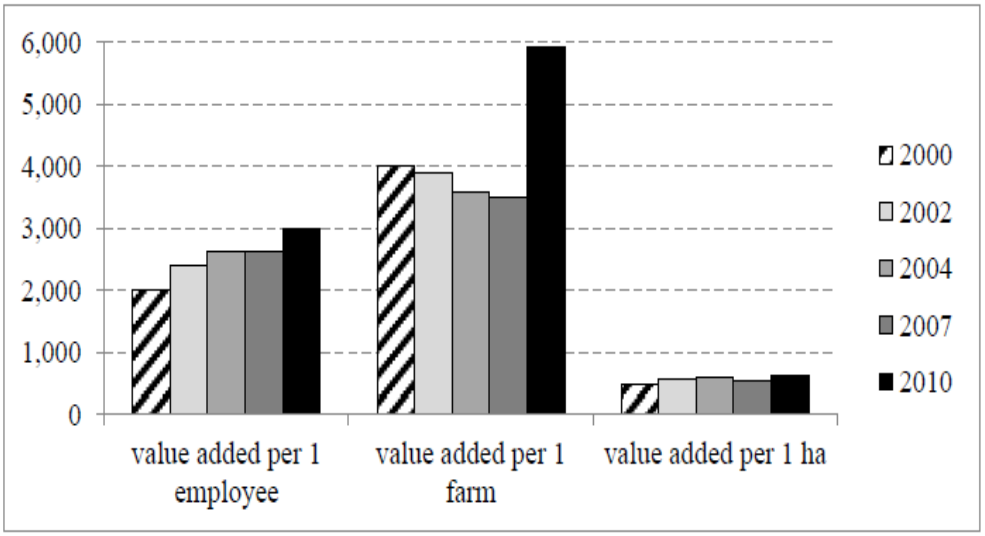
in the prices of agricultural products than inputs observed in the last years. Also in real terms, the value of GVA has increased slightly in 2012 although in the previous years it dropped strongly.

As for the value of income from the agricultural sector in 2012 they have reached the level of PLN 33.3 billion (in current prices) and were by almost 15% lower as compared to 2011. This is an effect of decreasing the total amount of direct support on account of finishing the previous programming period. As a result, in 2012 the total amount of direct support constituted 37% of agricultural income while in 2011 it was nearly half of that. However, given the record level of income in agricultural sector in 2011 it may be assumed that the high level of income in Polish agriculture after the accession to the EU has been continued.

When examining the EAA it may be seen that in the analysed period the value of plant and animal production has increased, as well as the value of production services provided by agricultural producers for other entities operating in agriculture. This was not caused only by a change in prices, but also different forms of progress, growing level of provision of farms with technical means, reduction of production under unfavourable conditions. Moreover, the rapidly processing denaturalization of consumption affected a drop in the value of home-processed agricultural products despite a price growth (Józwiak, 2012). Starting from 2004 the amounts of payments to production and certain types of products have increased incrementally. Because of the above, the increase in the value of agricultural income, despite an increase in the costs of indirect consumption, was faster and, consequently, the increase in the gross value added was also more rapid.

Differentiation of the structure of farms is often showed as one of the main factors deciding on the economic results of the sector. In order to eliminate the impact of different pace of price change in individual countries on the results of the sector, the economic results of agriculture were analysed in fixed prices of 2000 (Figure 5). In 2000-2010 there was a permanent and significant increase in the value added per 1 employee, but it was small as calculated per 1 ha of agricultural land. The ability to cumulate resources for new investments and perceiving a takeover of farms as an attractive alternative by future successors is significant from the perspective of durability and possibility of further development of farms. Thus it is necessary to assess the production effects in which farms have their share. An increase in the value added from ca. USD 4 to nearly 6 thousand, even under eastern European conditions, does not give evidence to significant economic strength of farms in these countries.

Figure 5. Value added generated in agriculture per 1 employee, farm and 1 ha in the EU (fixed prices in USD of 2000)



Source: own elaboration based on the data of Eurostat (table ef_lu_ovcropaa) and World Bank (World Development Indicators & Global Development Finance table EconomicPolicy&Debt\ National Accounts\Agriculture, value added (constant 2000 USD)).

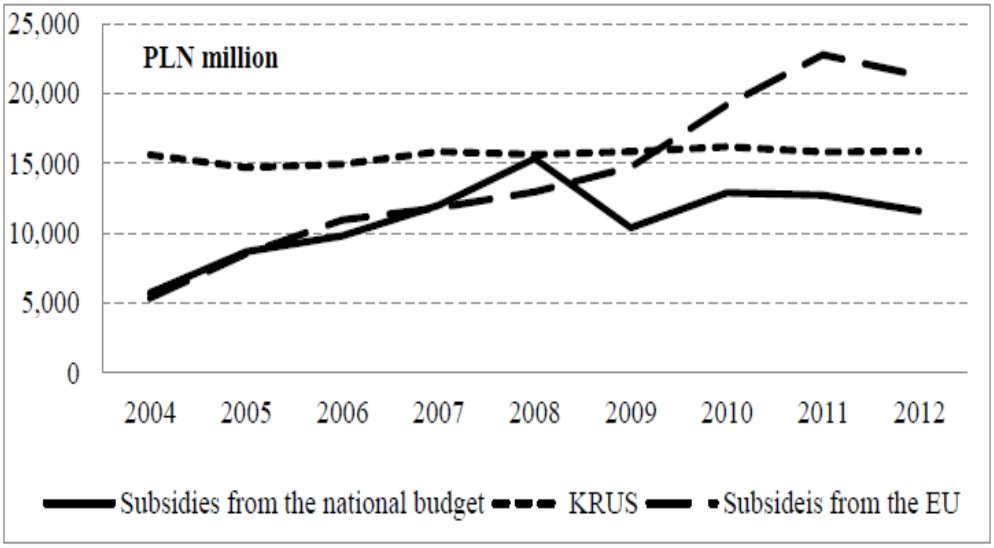
The progress made in the national agriculture was a resultant of activities undertaken by agricultural producers following from growing competition, changes in the prices of agricultural products and means of production, payments to production and products, State aid in the field of investment support and introduced innovations. The last concept encompassed each significant change in the scope of products and production processes, which resulted from solutions created in the country on the basis of licences bought abroad, foreign innovative means of production, results of national research and local invention and technology improvement activities.

The financial dimension of public policies for agriculture and rural areas

The increase in expenditure on the agricultural sector both in nominal and real terms is the measurable effect of Poland's accession to the EU. This refers to expenditure from the national budget as well as the EU budget (Figure 6). The share of expenditure on agriculture (excluding KRUS) in State budget expenditure has increased over twofold (from almost 2% in 1997-2004 to ca. 4% in the 2005-2012 period). An increase in budget expenditure for agriculture and rural areas is a consequence of covering Poland with the CAP and structural policy instruments of the EU, and it follows from the principle of co-financing of the operational programmes and co-financing of the direct payments from the national budget. After 2003 for the first time (since the system transformation) there occurred a chance for direct improvement of the income situation of national agricultural producers and reproduction processes on their farms. The recession break out in Poland took place as a result

of improvement in the macroeconomic conditions of functioning of the economy, which were seen as an opportunity to stop the growing degradation of the Polish agriculture and rural areas. Increased budgetary inputs were not, of course, able to solve the basic problems of the agricultural sector in Poland straight away, since this requires several years of consistent agricultural policy (Czyżewski, Matuszczak, 2012).

Figure 6. Budgetary expenditure on the agricultural sector in 2004-2012 (PLN million)



Source: Own elaboration on the basis of Analiza produkcyjno-ekonomicznej sytuacji rolnictwa i gospodarki żywnościowej w 2011, 2009 i 2006 roku, IAFE-NRI, Warsaw (subsequent years) and Czyżewski, A., Opinia o ustawie budżetowej w częściach dotyczących rolnictwa (individual years) Opinie i ekspertyzy, Chancellery of the Senate, the Analyses and Documentation Office.

The budget of the European funds was the main source of financing of the increase in budgetary expenditure on the development of agriculture, food industry and rural areas. In 2012 it amounted to ca. 53% of the budgetary expenditure on the agricultural sector (including KRUS). These financial resources intended for agriculture development and paid from the EU budget may be divided into four groups according to their impact on growth and structural changes in agriculture:

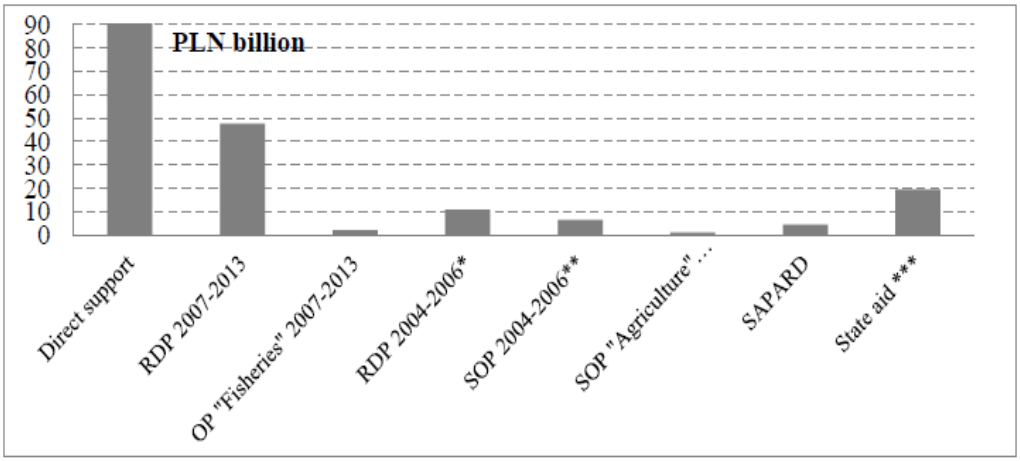
- entirely direct impact: modernisation of farms, early retirements and diversification of agricultural activity, setting up of young farmers;
- entirely indirect impact: infrastructure, land drainage, land re-parcelling, afforestation, agri-environmental schemes, advisory services;
- partly direct impact: direct payments, support for agricultural activity in less-favoured areas (LFA), market intervention expenditure, establishment of agricultural producer groups, establishment of micro-enterprises;

- partly indirect impact: quality of life on rural areas, support to processing industry, PHARE programmes, LEADER programme, village renewal, training, technical assistance.

From the beginning of membership in the EU until June 2013 Poland has received over PLN 180 billion under different support instruments from the EU resources (market intervention, direct support system, rural development programmes, and fisheries policy) and national support (excluding KRUS). The greatest share in these transfers belonged to direct payments (over 50%) and payments to implementation of rural development programmes (almost 40%). Poland, like the majority of the new EU Member States, applies the Single Area Payment Scheme (SAPS), under which Single Area Payments (SAP) and Complementary National Direct Payments (CNDP) are provided. Payments are awarded to each hectare of agricultural land in good agricultural condition of a farm whose area exceeds 1 ha. Total area entitled to SAPS in Poland is 14.1 million ha. Each year, applications for single area payments are submitted by ca. 1.35 million farmers and complementary payments - ca. 1.2 million farmers. The Single Area Payments constitutes ca. 60% of the total amount of payments, while the complementary payments - 30% of the amount of payments. Other forms of direct payments are insignificant in terms of the total budget of paid direct payments (e.g. animal payments amounted to 5% of total budget of payments and sugar payments to 4%).

The initial level of the Single Area Payment received by Polish farmers was much lower than the average level of payments in the EU-15, since Poland was covered by a 10-year transition period. The default rate of payment in 2004 amounted to 25% of the rate in the EU-15, 30% in 2005, 35% in 2006, after which it increased by subsequent 10% each year until reaching 100% of the average level of payments in the EU-15 in 2013. At the same time, complementary payments were paid from the state budget. They involved all crops excluding fallow land, potatoes other than starch, vegetables and decorative plants (both annual and perennial). In 2004-2010, the amount of co-financing from the state budget reached 30%, in 2011 it was 20% and in 2012 it was 10%. In the 2004-2012 period the total amount of support under SAP and CNDP expressed in PLN per 1 ha has increased from ca. PLN 503 to PLN 943 in 2012. The continuous increase in expenditure allocated for direct payments caused an increase in the role of these payments as an income-generating factor in agriculture. Before the accession the subsidies accounted for less than 9% of the farmers' income, while in the 2009-2012 period (despite the increase in the value of agricultural production in real terms by 20%) their share exceeded 60%.

Figure 7. Aggregated expenditure to CAP implementation in the period from May 2004 to August 2013



** excluding CNDP 2004-2006; ** along with measures of the Foundation of Assistance Programmes for Agriculture (FAPA) and Offices of the Marshal; *** mainly subsidies to interest rates on loans.*

Source: Author's own compilation based on ARMA Management Information System, www.arimr.gov.pl (accessed on: 02.09.2013).

The resources from structural funds of the EU were rather insignificant as it comes to funding changes in the Polish agriculture in 2000-2002. In subsequent years the share of EU budget resources in the funding of changes in the agricultural sector was, however, more significant. The first real programme addressed to villages and rural areas was the pre-accession SAPARD programme with the budget of EUR 946 million. In subsequent years - 2004-2006 (and actually, because of programme settlements, until the end of 2008), two programmes were implemented, e.g.: Rural Development Plan for 2004-2006 (RDP for 2004-2006, with the budget of EUR 3,592 million) and the Sectoral Operational Programme "Restructuring and Modernisation of the Food Sector and Rural Development 2004-2006" (SOP "Agriculture", with the budget of EUR 1,788). The Rural Development Programme (RDP 2007-2013, with the budget of EUR 17,420 million) has been implemented in Poland since 2007. The total amount of public resources – both EU, and national – allocated to rural development under SAPARD, RDP 2004-2006, SOP "Agriculture", and RDP 2007-2013 is EUR 23.7 billion. Financial resources under the programmes implemented in 2000-2006 (a total of EUR 6.3 billion) were used in full. The RDP 2007-2013 enjoys as much popularity among beneficiaries as its earlier versions (Figure 7). RDP 2007-2013 is the largest assistance programme that invests in rural areas (Wigier, 2012). Among the EU Member States, Poland has at its disposal the largest allocation from EAFRD (EUR 13.4 billion) for the implementation of measures covered by RDP 2007-2013. These funds are supplemented with a State budget contribution, which amounts to EUR 4 billion. In addition, the commitments from 2004-2006, which amount to EUR 3 billion and were undertaken under the Rural Development Plan 2004-2006, are also financed under EAFRD.

Conclusions

The share of the contemporary agricultural sector in the generation of the final food product and the generation of the GDP shows a downward trend. Yet, the contribution of non-agricultural elements of food economy increases in that account. The Engel's law, which states that as consumers' income rises, the proportion of income spent on food (in particular the unprocessed one) falls, although nominal value of the expenditure on food rises, has clearly revealed in the Polish food economy, just like in the entire global economy.

Searching for improve the competitiveness and efficiency of the Polish agriculture and increase in the income of the population working in that sector, the improvement of agrarian structure is always mentioned. In the Polish agriculture, just like in the Southern Europe countries and unlike in the Northern and Western Europe countries, there are mostly small farms (up to 10 ha of farmland). Large farms with an area of over 50 ha of agricultural land represent only 1.7% (of the total of holdings that are involved in agricultural activities), and 30% of agricultural land is concentrated in them. A weakness of the Polish agriculture consists in the concentration of the most of the production potential (resources) in the agricultural holdings that produce on a small scale. The imperfection of agricultural structures often translates into mistakes in the applied production technologies, and both areas entail low productivity of the factors of production. The micro-economic weakness of most agricultural holdings determines the sectorial weakness of the Polish agriculture on the European Single Market.

When analysing the competitiveness through the prism of stabilisation of agricultural markets and modernisation of the agricultural sector, it should be stated that, after Poland's accession to the EU, significant changes took place that were connected with the previous trend for socialisation of the budget expenditure for growth of expenditure earmarked for financing of structural changes in the agriculture and within rural areas. Among other things due to them, the number of farms in 2002-2012 decreased within area groups in which there are difficulties in achieving a parity income level and development opportunities. An increase in the number of farms took place in area groups in which there was appropriate income guarantees proper performance of the consumption function (parity income level) and the production function (implementation of net investments). The still present imperfection of agricultural structures and the necessity to make adjustments in the relations between the factors of production is a proof that it is necessary to introduce changes consisting in continuing the reduction of labour resources in the agriculture and modernisation of fixed assets.

The CAP instruments covering Poland resulted in doubling the actual income of farmers, which improved their economic situation and increased the opportunities to finance the current expenditure and to implement modernisation investments. However, the agricultural sector needs further transformations in the field of agrarian and production structures, and the EU's CAP should be an important stimulant thereof. After the accession, a considerable production and economic progress was made, but its competitiveness does not represent a strong foundation of international competitiveness. In the Polish exports on the European Single Market there are mostly higher processed products (which results from competitive advantage basing on lower labour costs and processing fees in the Polish food sector) and

labour-intensive products. Because of cheap labour force, the agricultural sector has an advantage in labour-intensive production areas, which is in accordance with the Heckscher-Ohlin theorem.

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Review Article

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LESSONS LEARNED FROM THE MID-TERM EVALUATION OF THE AUSTRIAN NATIONAL STRATEGY FOR THE FRUIT AND VEGETABLES SECTOR

Josef Hambrusch[1], Nina Weber[2]

Summary

The Austrian national strategy for the fruit and vegetable sector provides a framework for the producer organisation's sustainable operational programmes. One main objective of the national strategy is the bundling of production in order to improve the competitiveness of the fruits and vegetables producers. According to the agricultural census 2010, the share of production value of producer organisations in the fruit and vegetables sector, has constantly risen since 1999 and amounted to 53% in 2010. When analysing the number of projects and the expenditure of funds, it was found that a majority of financial resources was invested into the improvement of marketing activities / conditions and product quality. In order to justify ongoing public support in future, it will become necessary to stress the benefits of the operational programmes for the general public. This could be achieved, for example, by focusing on environmental measures. Already, integrated production has become the standard production method in the sector. Other environmental measures within the national strategy aimed at the reduction of resources in production (such as pesticides or energy). For these measures no improvements could be measured due to lacking monitoring data. For future evaluations, indicators need to be defined more clearly and precisely, in order to make the achievement of objectives measurable and visible.

Key words: *fruit and vegetable sector, producer organisations, national strategy, operational programmes.*

JEL: *Q180*

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Introduction

Pursuant to Articles 125 and 127 of Regulation (EU) No. 543/2011, the EU Member States' national strategies for "sustainable operational programmes in the fruit and vegetable sector" must be subject to evaluation (Durchführungsverordnung (EU), Nr. 543/2011). The purpose of this evaluation is to examine the degree of utilisation of financial resources and to assess the effectiveness and efficiency of the implemented operational programmes. Furthermore, the programmes' impacts and results shall be evaluated against the predefined objectives laid down in the national strategy, and, if applicable, also against the objectives set out in Article 103c, paragraph 1 of regulation (EC) No. 1234/2007 (Verordnung über eine gemeinsame Organisation der Agrarmärkte und mit Sondervorschriften für bestimmte landwirtschaftliche Erzeugnisse - Verordnung über die einheitliche GMO (EG), Nr. 1234/2007). In accordance with the implementation of the Austrian national strategy, the evaluation includes the period 2009, 2010 and 2011.

The Austrian national strategy for the fruit and vegetable sector aims to set its objectives according to the heterogeneous structures of Austrian producer organisations. For this purpose it defines a framework of six guidelines, which outline the main targets whilst additionally offering flexibility for the individual strategies of the producer organisations. Furthermore, these guidelines follow the overarching EU-objectives and guarantee coherency with other national schemes (BMLFUW – Bundesministerium für Land und Forstwirtschaft, Umwelt und Wasserwirtschaft, 2009).

During the evaluated period between 2009 and 2011, ten authorised producer organisations (POs) existed in Austria and were investigated in the course of the evaluation. Of these investigated producer organisations, four operated in the fresh vegetable sector, two in the fruit sector, one in the combined fruit and vegetable sector, one in the field of fruit, vegetables and processed products, and two in the processed products sector. Two of the investigated producer organisations were authorised in the course of the evaluated period. In the year 2011, three producer organisations intensified their existing cooperation and established an association of producer organisations with a focus on convenience products. Because of the date of its establishment, this association of producer organisations is not subject to the present evaluation (Jahresberichte der österreichischen Erzeugerorganisationen, 2009, 2010, 2011), (Schlussberichte der österreichischen Erzeugerorganisationen, 2011), (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011).

Methods

For this evaluation study, quantitative methodologies (statistical analyses) were combined with qualitative methods (interviews, "world café" in workshops). The monitoring reports of the Austrian producer organisations, which were forwarded by the BMLFUW (Federal Ministry of Agriculture, Forestry, Environment and Water Management), served as the fundamental data basis. Complementary secondary

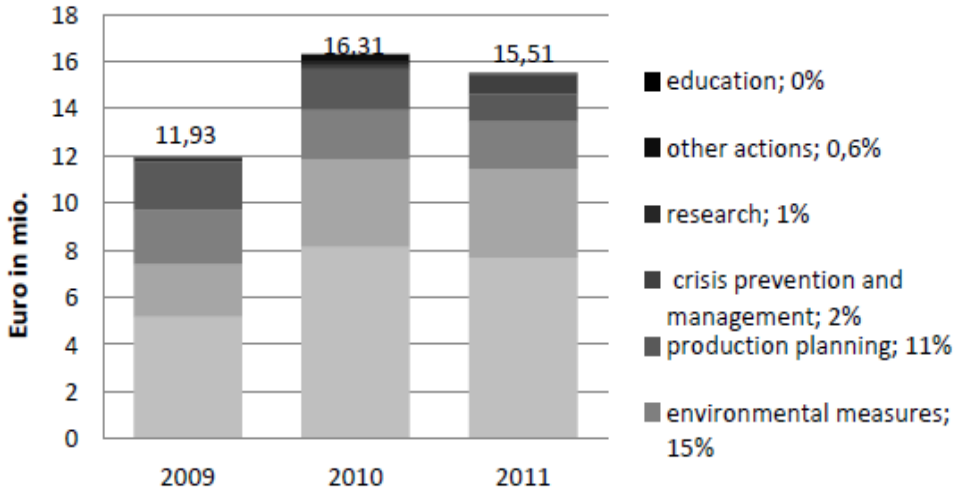
statistical data sources (e.g. Statistics Austria, Agrarmarkt Austria (AMA) and FADN data) were also used, and additional information was acquired through qualitative interviews. The interviews were conducted with representatives of almost all (nine of ten) producer organisations, as well as with representatives of the decision making and supervisory authorities of the operational programmes, advisory bodies and the Austrian Chamber of Agriculture. Furthermore, valuable inputs and conclusions were gathered through participation in a seminar on "biodiversity in fruit production" and two self-organised workshops.

The results of the evaluation are limited by several restrictions and should therefore be interpreted with commensurate caution. These restrictions include some inconsistency of the received data with regard to the definition or calculation of certain indicators (such as the indicator for production costs) and the plausibility and comprehensibility of the same. In addition, the effects of implemented measures generally only show after several years. For this reason, the effects of measures implemented during the evaluation timeframe (2009 to 2011) can really only be assessed in 2014, after the end of the present national strategy. To further complicate matters, the monitoring reports on which the evaluation was based assume that single actions taken under the fruit and vegetable regime can be assigned to individual measures (according to reason). But, in fact, many of the actions grouped under a single specific measure are interrelated and furthermore show strong linkages to, as well as influences on, numerous other and different measures as well. This makes it impossible to attribute certain effects to only one implemented measure – instead, the actions of the operational programmes work together as a whole.

Results and discussion

The importance of the single measures of the national strategy is reflected by the distribution of operational funds, which amounted to around 44 million Euros between 2009 and 2011(Figure 1). 96% of the total invested operational funds were distributed amongst four measures: "marketing" (48%), "product quality" (22%), "environmental measures" (15%) and "production planning" (11%). The remaining four percent were distributed amongst the measures "crisis prevention and management," "research" and "other actions" (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011). The measure for crisis prevention and management gained more importance in the year 2011 during the EHEC crisis, as a result of the temporarily valid regulation (EU), No. 585/2011 (Durchführungsverordnung (EU), Nr. 585/2011, 2011).

Figure 1. Distribution of operational funds



Source: Adapted from: Annual reports of the Austrian producer organisations 2009, 2010, 2011.

Due to the recently recognised producer organisations the total area of members increased by 45% between 2007 and 2011 to 10,325 hectares. Compared to the number of members, the total agricultural area of producer organisations showed a stronger increase, which lead to a slight increase of area per member (4.84 hectares per member on average). On average, farms in the vegetable sector grew larger in size during the evaluation period than did farms in the fruit sector (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011).

The concentration rate evolved similarly to the development of producer organisations and their members. Since the first producer organisations were established, the degree of concentration for commercial fruit and vegetable production has risen to about 60% (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011), (Statistik Austria, 2012).

The decision whether or not an agricultural holding becomes a member of a producer organisation is a very individual choice. For many producer organisations and agricultural holdings their historical development and origin still play a major part. Thus, production and marketing structures reflect the developments of the past and many farmers were already suppliers to predecessor organisations before the producer organisations were established. In addition, fruit and vegetable crops traditionally marketed directly (e.g. strawberries and asparagus) are underrepresented in Austrian POs. In general, the collective marketing of products aims to secure product turnover in the long term. Depending on the type of marketed product (fresh products, processed products, fruit or vegetables), the POs also have to face international competition. According to the interviews, POs offer a relatively safe market outlet for their members during a year with a supply surplus. On the other hand, during a year with a market supply shortage some producers believe they can sell their produce at better

conditions on their own. In this context, membership in a PO is also a decision connected to "speculation" and risk aversion, as ups and downs in the markets can be "smoothed over" from year to year.

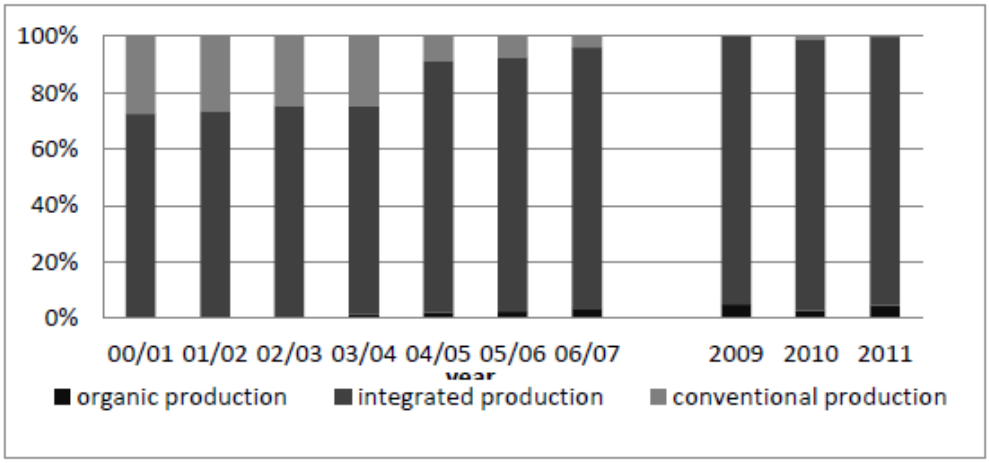
In the meantime, many producer organisations already have their own specialised consultants for members. This service offers additional motivation for farmers to become members of a PO, and consultancy services related to product quality and production techniques (e.g. varietal conversion) are viewed as particularly beneficial by agricultural holdings. Another major benefit of producer organisations is the opportunity for collective purchases, although this effect cannot be solely attributed to the impact of the operational programmes and national strategy.

At the same time, interviews show that farmers frequently are not aware of the benefits of producer organisations. Producer organisations are often regarded as "abstract constructions" and their investments are not perceived as directly beneficial to the individual farm. Therefore, the internal communication within a producer organisation plays a key part in guaranteeing transparency and communicating important information to members. However, the internal communication of Austrian producer organisations does not always rate as satisfactory. The interviews also reveal that, alongside "internal marketing" measures, more attention should be paid to motivating new members to join. In general, it can be stated that producer organisations are not always successful in transparently displaying the benefits of participation to farmers. In addition to economic rational, inter-human relationships play a key part in the decision regarding participation in a PO. By now, retailers have also developed strategies to counter the cooperation of producer organisation and POs have to deal with these strategies. One such strategy involves separating producers from POs and integrating them in the retailer's own supply chains (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012).

Contribution of the national strategy to the overall competitiveness of fruit and vegetables producers

One of the most important functions of POs is the concentration of supply, which should lead to a better bargaining position for producers in the face of large retailers. According to the interviews, the opportunities of POs to positively influence fruit and vegetable prices are rated as quite modest by the interviewed stakeholders (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012). During the investigated period (2009 - 2011) all of the Austrian POs implemented measures to promote product quality. Improvements in quality management systems, stronger merchandise controls, certification processes and audits all aim to meet the increasingly stringent demands. In addition, integrated production methods have become the standard production system in the Austrian fruit and vegetable sector (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012) (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011), (Figure 2).

Figure 2. Development of organic and integrated production in the producer organisations in Austria



Source: Adapted from: Annual reports of the Austrian producer organisations 2009, 2010, 2011; Hambrusch, Quendler, 2008.

Under the national strategy POs have aimed their actions at keeping internal production costs as low as possible. Among other costs, labour costs make up the major cost factor for POs. It can also be concluded that, within the operational programmes, investments in technical facilities lead to a more efficient utilisation of labour and therefore contribute to higher labour productivity.

When regarding costs at the level of individual farms, energy and labour costs make up the major portion of the production costs. Under consideration of historical developments (e.g. energy price index) it can be concluded that the input costs are due to rise further in future. According to interviews, membership in a PO offers the possibility of joint purchases and therefore opportunities to lower costs for intermediate consumption (fertiliser, seeds etc.) through quantity discounts and special conditions (BMLFUW – Bundesministerium für Land und Forstwirtschaft, Umwelt und Wasserwirtschaft, 2008) (LFL - Bayerische Landesanstalt für Landwirtschaft, 2012) (LK – Landwirtschaftskammer Wien, 2012).

Deadweight effects of the national strategy

Deadweight effects were estimated using qualitative interviews with experts representing the POs. The experts had to rate on an ordinal scale whether the implemented actions would have been carried out even without support of operational funds. Altogether, 64 interview statements were collected. Of these statements, 33 declared that the implemented actions would not have been carried out without funds from the operational programmes; in contrast, in 31 cases the actions would have been taken even without funding. When taking a closer look at the single measures, the experts estimated that actions aimed at "planning and production", "product quality" and "marketing" predominated among those that would have been carried out even without the aid of funds. This leads to the conclusion that actions related to the mentioned measures are seen as crucial for sustainable competitiveness. In

addition, investments must be made in order to maintain and improve internal processes inside the producer organisations. As a result, expenditures on these measures comprise roughly 80% of the total expenditures of the operational funds between 2009 and 2011. In contrast, the funds of the operational programmes play a major part in implementing the measures "research and experimental production," "crisis prevention and management" and "environmental measures." Without funding through the operational programmes, actions for these measures would only have been carried out in a minority of the cases (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012).

Coherence between different measures of the national strategy - and between the national strategy for the fruit and vegetables sector and the Austrian rural development programme

For this evaluation study, coherence between the different measures within the operational programmes is assessed. At the same time, however, the coherence between the operational programme measures and the measures of the rural development programmes must also be considered.

Measures of the operational programmes

Coherence between the measures of the operational programmes can be rated as satisfactory. According to the mid-term evaluation reports and annual monitoring reports of the POs, in combination with an expert appraisal, it can be concluded that the actions and measures of the programmes complement each other in achieving their objectives. In many cases, synergies can be identified between individual measures (Jahresberichte der österreichischen Erzeugerorganisationen, 2009, 2010, 2011), (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012), (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011).

Rural development programme

Beneficial linkages between the measures implemented through the operational programmes and the measures implemented through the rural development programme can be found in axis 1 (improving the competitiveness of agriculture and forestry) and axis 2 (improving the environment and countryside) of the Austrian rural development programme. The Austrian programme for rural development excludes POs from investments at the level of agricultural holdings. Exceptions are only made for collective purchases which are not considered within the rural development programme. Coherence and complementarity of the operational programmes for fruit and vegetables are guaranteed by the granting and controlling bodies. The responsible authorities have a comprehensive overview of the planned actions and ensure coherence in implementation. The Austrian paying agency (AMA) plays a central part in this process. AMA conducts administrative scrutiny of the payments to producer organisations. Because of the relatively small number of authorised POs in Austria, an on-the-spot check is conducted with each final payment. A central focus is on thoroughly checking invoices to ensure they are eligible for funding. Furthermore, the responsible controllers for both the fruit and vegetable operational programmes and the rural

development programmes work in cooperation to exchange information. Due to the double checking of applications, both for the fruit and vegetable operational programmes and the rural development programme, double payments can be excluded. The POs also have to contractually declare that they do not receive any form of double payments and this is an integrative part of the operational programmes. According to the granting and controlling authorities, there were almost no issues related to double payments during the evaluated period in Austria (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012).

Relevance of subsidies for the general public and effectiveness of measures

The number of implemented actions and the amount of invested resources per measure indicate that the major portion of funds was invested in improving marketing conditions and product quality. These objectives mainly pursue the specific interests of the POs (such as improving competitiveness and the concentration of supply). To justify future public support, it will become of vital importance to also demonstrate the public benefits of implemented measures. In this way, operational programmes add value to general public objectives through their effects. For example, improved product quality and food safety can be seen as benefiting the public good. This may refer to special production requirements or the traceability of various products.

Up to now, approximately 90% of production is certified by some kind of private quality management system. This development not only occurs within producer organisations, but also within the entire fruit and vegetable sector in Austria.

Another important aspect pertains to environmental measures. Integrated production has become a generally accepted production standard in the entire fruit and vegetable sector. Despite discussions on the effectiveness of integrated production and the role of customers (retail), it can be concluded that the requirements for integrated production has positive effects on the environment. For other environmental actions aimed at reducing soil and water contamination, it was not possible to evaluate the effects due to insufficient quality of the recorded indicators (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011).

Therefore, in future, producer organisations should define uniform and clear indicators to allow accurate and precise interpretation as well as evaluation according to predefined objectives.

Efficiency of the national strategy

Conclusions regarding administrative effort have been derived from the expert interviews and comprise the opinions of different actors. In general, producer organisations are satisfied with the current design of the national strategy and operational programmes. Points of criticism concern the financial and personnel-related bureaucratic burden related to the administration, implementation and scrutiny of measures. In most POs one part-time employee is in charge of administrative duties related to the operational programmes.

Furthermore, in most POs the reporting system is conferred to an external consultancy. The small-scale and rather heterogeneous structure of Austrian POs leads to higher administrative costs and operating expenses (for the POs). According to the interviews, specifications and controls are much costlier for POs than for individual farms. From the perspective of costs, there is little incentive for farms to join a producer organisation (e.g. to contribute to operational funds and the internal costs of EOs). Consequently, POs develop new internal concepts to confront this issue. Fruit POs, for example, try to meet this problem by changing and developing their fruit varieties. The reduction of varieties in particular should satisfy changing demand and help meet logistical challenges more effectively (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012).

The implemented measures often include investments in facilities and equipment which increase the internal performance of production. Many of the implemented measures show a connection with improving marketing conditions (roughly 50% of the operational funds). In compliance with the legal framework, actions affecting individual farms have been implemented to a smaller extent (e.g. battery operated shears), (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011). It can be assumed that these types of actions raise the satisfaction of members, and that they may implicate some deadweight effects (to a certain extent).

Alongside POs, several institutions are involved with the implementation, administration and control of the operational programmes. These institutions in general include departments of the BMLFUW (Federal Ministry of Agriculture, Forestry, Environment and Water Management), which are entrusted with scrutiny of the legal requirements and authorising the contents of the operational programmes. Additionally, preliminary operational funds are approved. The AMA (Agrarmarkt Austria) is the paying agency and is entrusted with the handling of payments and controlling the implementation of the operational programmes. It is difficult to estimate the costs for the above mentioned administrative activities. Nevertheless, the number of involved institutions and staff suggests that the co-financed funds by far cover the expenses.

Conclusions

The following subsection summarises several important results, as well as proposals for adapting the measures of the operational programmes and the national strategy, as given by interviewees and derived from the available data (Österreichische Erzeugerorganisationen, Interessensvertretungen, Expertinnen, 2012), (Halbzeitevaluierungen der österreichischen Erzeugerorganisationen, 2011).

Concerning the number of Austrian POs, a certain degree of saturation seems to have been reached. POs exist in most regions which are relevant for fruit and vegetable production (Figure 3). A higher number of POs probably would be able to increase the degree of concentration but, on the other hand, the intended concentration of supply would become weakened. Because the POs stand in competition with each other, a higher number would enable retailers to play the POs off against one another. In contrast, a certain potential can be

found in cooperation and team play between individual POs. Accordingly, incentives should be created for stimulating closer cooperation between POs on a national level and to support the establishment of associations of producer organisations. Under consideration of the ongoing structural changes in agriculture, it will be the task of the POs to maintain existing structures (number of members) and/or gain new members.

Figure 3. Distribution of producer organisations throughout Austria in 2011

Source: Adapted from: Annual reports of the Austrian producer organisations 2009, 2010, 2011.

Future challenges appear to emerge from the increasing concentration of large retailers and discounters, who together make up the major distribution channels. This situation calls for the development of new concepts and strategies by the producer organisations. Especially in POs without a contracted marketer (single-level POs) additional sales training for the sales personnel could improve the bargaining position in the face of professional counterparts. Furthermore, in reference to consumer surveys and studies, consumers are increasingly demanding a higher level of services (e.g. convenience services) and are also growing more concerned about quality and food safety. Regarding these trends, the national strategy should focus on measures which support the development of new concepts as well as innovation capacity (e.g. alternative marketing possibilities).

In order to be able to evaluate the sustainability of POs and/or their operational programmes an indicator should be introduced which analyses the duration of PO membership. This indicator could for example determine the ratio of those farms whose membership in a PO has lasted longer than five years. If this ratio is very small, it can be concluded that the POs' sustainability is rather poor. In this case individual farms could draw an advantage from membership in the short run and then leave the producer organisation.

Some POs expressed a demand for an extension of support measures to individual farms within the operational funds. Depending on the final design of the CAP (2014 – 2020) a clear differentiation between the measures of operational funds and those of the Rural Development Programmes should be ensured (e.g. maximum limit of investments). One

problem regarding delimitation between measures of the operational programmes and rural development measures concerns the different planning periods (at least this has been the case in the past). This complicates the definition and design of measures within the operational programmes (e. g. environmental measures) but also the coordination and interlinking of such measures with those of the rural development programme. A recommendation which concerns the national level as well as the European level would be to synchronise/coordinate the planning horizons of the operational programmes and the rural development programmes to the highest possible degree.

Mirroring the on-going discussion regarding a readjustment of the Common Agricultural Policy (CAP), the question arises as to what content might be supported by operational programmes in the coming period. Depending on the design of the CAP, one suggestion involves measures for risk prevention and crisis management. In this regard, it should also be clarified why such measures did not receive more consideration during the current period. Due to the low utilisation rate for risk prevention (e.g. mutual funds, insurances), it can be assumed that the priorities simply lay on other measures during the current period. However, another possibility is that the design of these measures was not attractive enough. The energy sector represents another potential option for granting support (e.g. technical investments in more efficient equipment and alternative energy sources). Given the relatively high energy costs in production, as well as the high energy inputs in protected cultivation systems, it seems reasonable to more closely consider promoting alternative energy concepts. In the course of the expert interviews, several different sub-measures were mentioned that could be implemented complementary to already existing environmental measures. For instance, these include conversion to production systems with closed water circulation, greater promotion of the use of beneficial organisms and supporting the use of plant fortifiers.

In the course of a workshop, experts expressed their concern about the EU thresholds pertaining to investments in environmental actions (reduction of water use, energy use or the emission of pollutants). Specifically, they expressed that a 25% improvement in the initial situation was not realistic in Austria, given the country's already high environmental and production standards. For this reason, it seems nearly impossible to accomplish such a high improvement rate; and hence a discussion on adopting prescribed thresholds based on the existing environmental standards in individual member states was proposed. Such an adoption would enable appropriate actions to be authorised and supported more frequently in Austria.

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PROTECTED AREAS – CHANCE OR BARRIER FOR FOOD QUALITY IN CASE OF AGRICULTURE IN POLAND

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Summary

The main aim of this paper is to present the relation between the state of the natural environment and the food quality produced on a given area. The two groups of analysed business activities are ecological farms and eco-friendly food processing plants. In the work, the author conducted a comparative analysis of the Polish voivodships with large and small shares of valuable natural areas in the total area of the voivodship in relation to the ecological farms and eco-friendly food processing plants.

Key words: *ecological food processing, food quality, protected areas, organic farms.*

JEL: *Q15, Q18*

Introduction

The problem discussed in this paper is poor quality of food. The main aim of the research was verification of the hypothesis that the quality of food is better if the food is produced in regions with a large scale of protected areas. The paper includes an analysis of the effect of the natural environment on the quality of food produced on a given area. There are 2 groups of entities affecting food quality: organic farms and eco-friendly food processing farms. For the first group, increasing demand for high quality food will determine the rise in quantities of sustainable agriculture farms offering organic products. Organic agriculture farms specialize in high quality food production. Eco-friendly food processing plants are the second group of entities affecting the quality of foodstuffs. Local food processing plants that use high quality raw material contribute to the high quality of final foodstuffs (Ministry of Agriculture and Rural Development, 2011).

The paper presents a comparative analysis of the voivodships in Poland with large and small participation of protected areas in the general area of the voivodship in relation to organic farms and eco-friendly food processing plants.

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Paper goals

Besides the price, food quality is more and more often one of the basic factors affecting choice and the purchase of foodstuff. Substantial changes distinguish the 20th and 21st centuries in the sphere of food consumption. These changes are connected with new models of consumer behaviour becoming widespread. Analysis of the level and structures of food consumption in the spatial perspective, i.e. between countries in the world, shows the process of consumption homogenization. Patterns of consumerism are supported by: the development of commercial international networks, offer standardization by shopping centres, media, especially television, including programs emitted by commercial stations, the development and spread of the Internet, wireless telecommunications, as well as the development of fast food restaurant networks, the popularization of "instant" food (semi-finished products, ready dishes, food concentrates, sauces, instant soup and chips, bars of chocolate), the mass development of tourism supporting the exchange of consumption models between tourists and the local population, as well as dietary recommendations leading to rational maintaining (Kwasek, 2010). Assimilation of inappropriate standards of food consumption has an adverse influence on life and the public health.

Research confirms that the quality of foodstuffs and the way of feeding have a direct influence on the population's health. Meanwhile, changes in lifestyle cause that food consumption in the developed countries, also in the European Union, is unfortunately directed at worse quality food (FAO, 2010). What's more, it is leading to food spoiling and strengthening negative trends in consumption. Increase of consumption, and at the same time increase in supply of food, is unfortunately affecting the worsening of the food quality. Mass production unavoidably causes the adulteration of final goods and also supports a cut in price. This is an additional incentive inducing many consumers to shop. The alternative to the mass manufacture of foodstuffs could be production using environmental methods in organic farms.

The main goal of the research was verification of the hypothesis that the quality of food is better if the food is produced in regions with a large scale of protected areas.

Data sources

Main source of data used in the paper are data from Statistical Yearbooks of Agriculture in Poland and EU, reports relating to organic farming, data from the Central Statistical Office in Poland concerning rural areas and environment in Poland.

It shows that production using environmental methods (fruits and vegetables, milk, meat, poultry and eggs) in combination with clean production technologies, tradition, knowledge and experience of entrepreneurs can contribute to the improvement of food quality. Strengthening cooperation between the producers of environmentally-friendly products and the food processing industry workers will cause an increase in food quality. Development of organic farming will force the development of organic processing to work in accordance with the requirements of environmental protection.

The local food processing plants that use the appropriate quality of raw materials will contribute to the better quality of the final products of production.

The base of organic farming development, apart from the necessity to care for the natural environment, is the increase in demand for healthy food. Thus far, this is noticeable above all on the European Union markets, where – what should be emphasized - the prices of organic products are much higher than that of remaining products. In spite of this, consumer spending on organic food is constantly growing.

In 2008, the global market for certified organic food and drinks was estimated to be 34.8 billion Euros. The countries with the highest per capita consumption in 2008 were Denmark (annual per capita consumption 132 Euros), Switzerland (119 Euros) and Austria (97 Euros). The countries with the highest shares of organic food sales in 2008 were also Denmark (6.7% market share), Austria (5.3%) and Switzerland (4.9%). In 2009, the market continued to grow in most countries: Denmark reached a marked share of 7.2%, Austria 6%, Switzerland 5.3% (Organic Agriculture Worldwide, 2011). Research shows that despite the global crisis in 2008, the demand for organic products increased. Thirty-four percent (34%) of respondents are regularly buying environmentally-friendly products (32% in 2007) and 24% of those surveyed is prone to pay more for environmentally-friendly products (20% in 2007). Inhabitants of the European Union are the most conscious consumers. Research shows that 54% of the inhabitants of the EU are inclined to pay a minimum of 5% more for an environment-friendly product. Only 19% of respondents do not want to pay more for environmentally-friendly products (Manget, Roche, Münnich, 2009).

In Poland, the market of organic foodstuffs, in spite of predicted growth, is still proportionally marginal. One should seek causes e.g. in high prices compared with conventional food. Therefore, the organic products market is narrowed to specialist shops, which are located in large urban agglomerations. This situation discourages the producers. They need to use agent services and as a result, the price they receive for environmentally-friendly products is the same as the price for traditional products. Only producers who provide healthy food directly to shops receive higher prices. It should be emphasized that the quality of food depends directly on the quality of the natural environment. A clean atmosphere, water and uncontaminated soil can only have a positive influence on food production.

Materials and Methods

The paper based on comparative analysis of the Polish voivodships with large and small shares of valuable natural areas in the total area of the voivodship in relation to the ecological farms and eco-friendly food processing plants. Data used in the analysis was taken from the Central Statistical Office in Poland and European Union Reports. The author has compared voivodships, in which protected areas are dominating, with the quantity of organic farms and eco-friendly food processing plants functioning in these voivodships.

An area of 32.3% of Poland is under legal protection (the Central Statistical Office, 2012). There are 23 national parks, 121 landscape parks, 384 protected landscape areas and 1451

reserves (the Central Statistical Office, 2012). The main function of valuable natural areas is maintaining the advantages of the natural environment in an undisturbed state. The condition of running business activity on this type of area is to not destroy the natural state. Model forms of business activity possible to carry out on such areas are organic agriculture and ecological food processing.

The organic farming sector is characterized by a great increase in the quantities of agricultural farms offering environmentally-friendly products in the last ten years. This is a worldwide tendency. However Australia and Oceania, Europe and the dynamically growing market of South America are playing the dominant role. In Europe, the countries with the highest participation of organic farming in the total farming sector in 2009 were Liechtenstein (26.87%), Austria (18.50%), Sweden (12.56%), Switzerland (10.78%) and Estonia (10.49%). In Poland, the participation of organic farming in total farming was 2.37%. The largest area of cultivated land as organic farming was in Spain (1 330 774 ha), Italy (1 106 684 ha) and Germany (947 115 ha). Poland was at 9th place amongst countries with the biggest area cultivated as ecological farms in Europe. The area of ecological cultivations in Poland in 2009 was 367 062 ha (Organic Agriculture Worldwide, 2011). The total organic area is the sum of the areas under conversion and the fully converted areas. The areas under conversion as a percentage of the total organic area can give an indication of the potential growth in the organic sector in the years to come. In 2008, there were 4 countries whose share exceeded 40%: Poland (43.1%), Spain (47.6%), Romania (48.9%) and Bulgaria (74.6%), (Rohner Thielen, 2010). In Poland, as well as in the other countries of the European Union, the number of organic farms is increasing. There were 10 153 eco-friendly farms with the relevant certificate and 6 938 farms under conversion in 2009. In 2010 the number of certified farms was 12 901 (more details in the table below).

Table 1. Increase in organic farms in Poland (2002-2010)

Years	Certified		Under conversion	
	Farms	Agricultural area in ha	Farms	Agricultural area in ha
2002	882	20 862	1 095	22 966
2005	1 951	37 492	5 231	122 218
2007	6 618	137 891	5 252	149 638
2008	8 685	178 732	6 211	136 116
2009	10 153	222 022	6 938	145 040
2010	12 901	308 095	7 681	210 974

Source: Statistical Yearbook of Agriculture 2011, Branch Yearbooks, the Central Statistical Office, Warsaw 2012, p. 100.

Strong interest in environmentally friendly products caused that the number of organic farms in 2010 was fourteen times higher than in 2002. About 60% of all organic farms has certificates (12 901) and 7 681 are under conversion.

Picture 1. Map of voivodships in Poland

Source: Central Statistical Office, http://www.stat.gov.pl

In the comparison of voivodships, the largest number of organic farms is in the voivodships: Malopolskie (2197), Podkarpackie (2014), Lubelskie (1710), Zachodniopomorskie (1696) and Mazowieckie (1673). In the arrangement of voivodships in 2010, the largest number of organic farms in total was recorded in the voivodships of Malopolskie (2197), Podkarpackie (2014), Lubelski (1710), Zachodniopomorskie (1696) and Mazowieckie (1673).

These voivodships concentrated over 54% of organic farms in the country (the Central Statistical Office, 2012).

Comparing all voivodships in Poland, one should notice that in the "Green Voivodships", i.e. with a high share of protected areas in the total area, the quantity of organic farms is larger. It is often emphasized that valuable natural areas support the development of this form of business activity.

Table 2. Protected areas and the quantity of organic farms in all voivodships in Poland (2009)

Voivodships	Share of protected areas - % in the total area	Rank in Poland	Number of organic farms	Rank in Poland
Poland	32.3		17 091	
Dolnośląskie	18.2	16	1 021	9
Kujawsko-pomorskie	31.3	9	279	14
Lubelskie	22.7	12	1 710	3
Lubuskie	38.9	5	579	11

Voivodships	Share of protected areas - % in the total area	Rank in Poland	Number of organic farms	Rank in Poland
Łódzkie	18.8	15	366	13
Małopolskie	52.1	2	2 197	1
Mazowieckie	29.7	10	1 673	5
Opolskie	27.3	11	63	16
Podkarpackie	44.5	4	2 014	2
Podlaskie	32.0	7	1 528	6
Pomorskie	32.7	6	494	12
Śląskie	22.1	13	199	15
Świętokrzyskie	64.6	1	1 170	8
Warmiańsko-mazurskie	46.5	3	1 514	7
Wielkopolskie	31.8	8	588	10
Zachodniopomorskie	21.1	14	1 696	4

Source: own research on the base of Environment 2010; Statistical Yearbook of Agriculture 2011.

The table 2 shows that the "Green Voivodships" are Swietokrzyskie, Malopolskie, Warminsko-mazurskie and Podkarpackie. There are 6 895 organic farms, more than 40% of all organic farms in Poland, in these 4 voivodships. Voivodships with a small share of protected areas in the total area are Dolnoslaskie, Lodzkie, Zachodniopomorskie and Slaskie. Three thousand two hundred and eighty-two (3 282) organic farms, less than 20% of all organic farms in the country, function there.

Regions in which the quantity of ecological farms in 2009 was the highest are Malopolskie, Podkarpackie and Lubelskie Voivodships. The voivodship that was leading in the field of health food production in 2009 was the Malopolskie Voivodship. In 2009, 2197 organic farms functioned there. This voivodship is also characterized by a large share of protected areas in the total area. Over 52% of the Malopolskie Voivodship is under legal protection. The Podkarpackie is the next voivodship playing a great role in ecological food production, with 2014 organic farms. Just as in the case of the Malopolskie Voivodship, in the Podkarpackie the valuable natural areas occupy a considerable part of this area (over 44% of the voivodship is under legal protection).

The third rank in terms of the number of organic farms in Poland is the Lubelskie Voivodship (1710 organic farms in 2009). This voivodship is not situated in a part of Poland with many protected areas. There are less than 22% of valuable natural areas. Nevertheless, the rapid development of eco-friendly farms is determined by the typically agricultural character of this region. The economy of the voivodship is based on farming and the Lubelskie Voivodship is leading in the field of agricultural and fruit cultivations. Production of healthy food is dynamically developing in this area.

In 2009, the Slaskie and Opolskie Voivodships were characterized by a low figure of eco-friendly farms (199 and 62, respectively). The share of protected areas in the total area of the above-mentioned voivodships is relatively insignificant (rank 11 and 13 for 16 voivodships in Poland).

Amongst products cultivated on organic farms, fruits and vegetables dominate. Comparing all countries of the European Union, one should state that Poland is a major producer and supplier to the Euromarket. The share of vegetables produced in Poland in the total production of the European Union is over 25%. Minimally more is produced only in Romania. However, the share of fruits is 21.5%, which gives Poland the 1st place in the European Union (Martinez Palou, Rohner Thielen 2008).

The development of organic farming should be a specialty and a chance of the dynamic development of agriculture on protected areas. The advantages of nature are undoubtedly an additional determinant of the regional development and a factor influencing the appropriate food quality. The natural environment determines agricultural production and the state of the environment could have a positive influence on the quality of vegetables, fruits, meat, milk and poultry.

The second group of business entities affecting the food quality are eco-friendly food processing plants. Similarly as in the case of organic farms, the last years are characterized by great dynamics of increase in eco-friendly food processing plants in Poland.

Table 3. The number of eco-friendly food processing plants in Poland (2004-2009)

Years	Food processing plants
2004	55
2005	99
2006	170
2007	206
2008	236
2009	*277*

Source: own research on the base of Organic farming in Poland. Report 2007-2008, date IJHARS.

Data in the table 3 shows that year 2004-2009 were characterized by an increase in the number of eco-friendly food processing plants, which confirms the dynamic development of the organic sector of production in Poland. In 2009, 277 eco-friendly food processing plants were operating in Poland. However their location is not a consequence of organic farms' localization. Therefore, the activity of eco-friendly food processing plants is not entirely consistent with organic farms' activity. The relation between the protected natural areas and the quantity of eco-friendly food processing plants within the given area is shown in the table 4.

Table 4. Protected natural areas and the number of eco-friendly food processing plants within the voivodships in Poland (2009)

Voivodship	Share of protected areas - % in the total area	Rank in Poland	Number of eco-friendly food processing plants	Rank in Poland
Poland	32.3		277	
Dolnośląskie	18.2	16	11	10
Kujawsko-pomorskie	31.3	9	13	8
Lubelskie	22.7	12	35	3
Lubuskie	38.9	5	6	14
Łódzkie	18.8	15	14	7
Małopolskie	52.1	2	20	5
Mazowieckie	29.7	10	54	1
Opolskie	27.3	11	1	16
Podkarpackie	44.5	4	24	4
Podlaskie	32.0	7	5	15
Pomorskie	32.7	6	10	11
Śląskie	22.1	13	12	9
Świętokrzyskie	64.6	1	8	13
Warmiańsko-mazurskie	46.5	3	9	12
Wielkopolskie	31.8	8	36	2
Zachodniopomorskie	21.1	14	19	6

Source: own research on the base of Environment 2012; Statistical Yearbook of Agriculture 2011.

In the case of eco-friendly food processing plants, dependence between their number and the state of the natural environment does not appear. In the ”Green Voivodships” (Swietokrzyskie, Malopolskie, Warminsko-mazurskie, Podkarpackie) 61 eco-friendly food processing plants operate, that is 22% of all food processing plants of this type in Poland. In these voivodships, on average 113 organic farms falls on one food processing plant.

Regions where the number of eco-friendly food processing plants was the highest in 2009 are the Mazowieckie (54), Wielkopolskie (36) and Lubelskie (35) Voivodships. A high share of valuable natural areas in the total area does not characterize these voivodships. These voivodships aren’t regions (outside the Lubelskie Voivodship) where the production of organic food is the highest. This divergence confirms that food processing plants probably acquire the raw materials from the neighbouring regions. Transport of the raw material that was produced using environmental methods can have a negative impact on the final quality. It seems that the solution is the proper localization of eco-friendly food processing plants, which should be close to organic farms.

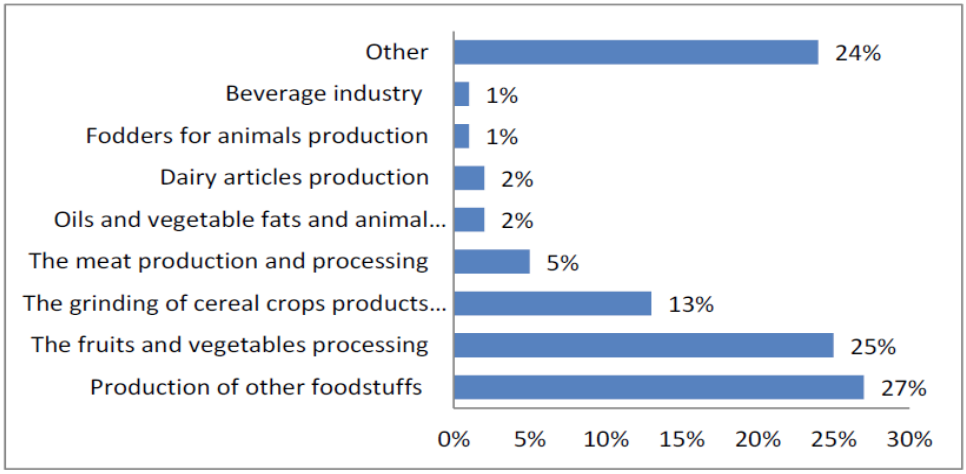
Environmentally-friendly products are produced by organic farms which are mainly located in areas with many protected areas. The natural environment has a beneficial influence on the quality of the raw materials. However, the quantity of organic farms is not a determinant of the number of food processing plants located within the given voivodship. The Podlaskie Voivodship with many valuable natural areas is a good example. There are only 5 eco-friendly food processing plants and 1528 organic farms, so the ecologically produced raw material is probably processed in other voivodships,

which makes the quality of the final product worse.

Results and Discussion

Analysing the branches in ecological processing, one should state that the processing of fruits and vegetables dominates. A large share in the processing of organic products in 2007 was had by the processing of fruits and vegetables – 28% and cereal – 19%. Meat production and processing had a smaller share – 7%, as well as the production of dairy products – 3%. In 2008 (with reference to the previous year), a reduction of the share of fruits, vegetables, cereal and meat processing took place. The share of fruits and vegetables processing was 25%, cereal 13%, and meats 5%. Production of other foodstuffs (for example sugar, cocoa, chocolate, tea, coffee, spices and ready dishes) determined 27% of the total food processing industry in organic farming (IJHARS, 2009).

Figure 1. Branch share in ecological food processing in Poland (2008)



Source: Organic farming in Poland, 2009, IJHARS.

The data above (Figure 1.) show that one of the dominating branches in ecological processing is fruits and vegetables processing. In the European Union, Poland is the leader in the field of fruits and vegetables processing. Data show that vegetables production in Poland is over 25% and fruit production is over 21% of the internal EU market. This is the causes of the large number of fruit and vegetable processing companies.

Fruits and vegetables are raw materials that spoil easily and quickly, which affects the quality of the final products. In this case, proper storage and fast and efficient transport are very important. The distant localization of eco-friendly food processing plants from the producers of vegetables and fruits can adversely affect the quality of the produced food. In the end, good quality of the produced raw material on valuable natural areas is not a determinant of high food quality. Inappropriate storage and transport of high quality ecological raw materials can greatly worsen the quality of the final product. Another factor adversely affecting the food quality produced from the organic raw materials is the

low number of eco-friendly food processing plants located close to the producers. The correlation between the quantity of organic farms and the number of eco-friendly food processing plants is shown in the table 5.

Table 5. Relation between the quantity of organic farms and the number of eco-friendly food processing plants in a given voivodships in Poland (2009)

Voivodship	Number of organic farms	Number of eco-friendly food processing plants	Number of organic farms / Number of eco-friendly food processing plants
Dolnośląskie	1 021	11	92.81818
Kujawsko-pomorskie	279	13	21.46154
Lubelskie	1 710	35	48.85714
Lubuskie	579	6	96.5
Łódzkie	366	14	26.14286
Małopolskie	2 197	20	109.85 *
Mazowieckie	1 673	54	30.98148
Opolskie	63	1	63
Podkarpackie	2 014	24	83.91667 *
Podlaskie	1 528	5	305.6 *
Pomorskie	494	10	49.4
Śląskie	199	12	16.58333
Świętokrzyskie	1 170	8	146.25 *
Warmiańsko-mazurskie	1 514	9	168.2222 *
Wielkopolskie	588	36	16.33333
Zachodniopomorskie	1 696	19	89,26316

* Voivodships with a large share of valuable natural areas in the total area.

Source: own research

In the ”Green Voivodships” the indicator of the number of organic farms to the number of eco-friendly food processing plants is the least beneficial, i.e. the number of food processing plants is the lowest in relation to the number of organic farms. It can be seen that in the Podlaskie, Warminsko-mazurskie, Swietokrzyskie and Malopolskie voivodships there is a ratio of one eco-friendly food processing plant to over 100 organic farms. The worst situation is in the Podlaskie Voivodship, where the ratio is one eco-friendly food-processing plant to over 300 organic farms.

The argument justifying the presence of more eco-friendly food-processing plants in relation to the quantity of organic farms within the voivodships, where the share of protected areas is smaller, could be the barriers associated with the location of food-processing plants. Unfortunately, the inhabitants and the local authorities could still consider valuable natural areas a barrier for the localization of industrial plants, which also include ecological processing plants. Meanwhile, ecological trends cause that businesses are interested in applying solutions to not have a negative impact on the environment.

Conclusion

To sum up, it is possible to state that an increase in demand for environmentally-friendly products clearly translates into interest in this form of production. In Poland, the area of ecological cultivations is constantly increasing. This trend should have a positive effect on organic farming development in valuable natural areas. There is a correlation between the state of the natural environment and the quantity of organic farms in a given voivodship. The case study of Poland confirms it. There are more organic farms in the voivodships with a large share of valuable natural areas in the total area than in regions where the share of protected areas is smaller. Nevertheless, it is not the only factor affecting the transformation of arable farms into ones producing exclusively health food. A large share of protected areas in the total area does not affect the number of eco-friendly food processing plants. The relation is simply the opposite, that is in the "Green Voivodships" in spite of the bulk of organic farms, there are less food processing plants. The distant localization of eco-friendly food processing plants can adversely affect the quality of the produced food. In the end, the good quality of the raw materials produced on protected areas does not necessarily translate to a high food quality.

The verification of the hypothesis that the food quality is better when it is produced in regions with a large share of protected areas is ambiguous. The protected areas affect the quality of the raw materials produced on organic farms. The state of the natural environment has a beneficial influence on setting up new organic farms. However, ecological processing, in most cases, is not located in protected areas, in other words close to the organic farms. This in turn could cause inappropriate food storage and transport, which could have an adverse impact on the quality of the final product.

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Review Article

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FINANCING OF THE AGRICULTURE IN SERBIA: STATE AND PROSPECTS[1]

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Summary

Serbian agriculture has a relatively poor performance through the decades. One of the main factors is inadequate financing system for such purposes in spite of numbered financial institutions and financial sources. Especially the financial resources and its lending have a poor performance in primary production of farmers and agricultural SME's, much poorer than in other cases and economy sectors. Governing the research concerning state and perspectives of agriculture financing in Serbia, the authors has formulated the goal to examine and determine the main factors that are shaping financing sector performance and its involvement in the business of agriculture. Also the goal was to recognize the main tendencies in the sphere of financing the agriculture as well to point the connection and interrelation between financing sector and government efforts to put much more efforts to agricultural development and institution building concerning financing at the first place.

***Key words**: financing, agriculture, financial institutions, financial sources, banks, leasing firms, financial and development funds, microfinance organizations, integrators.*

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Introduction

With approximately 10% of GDP, 21% of employment, and 23% of total exports, agriculture is one of the most important economic sectors in Serbia. Agriculture accounts for a significant share of foreign trade, revealing a surplus of USD 150 million in 2005, which increased to USD 640 million in 2010. Also the significance of agriculture is reflected in, among other things, its contribution to the creation of gross domestic product. In the period from 2002 to 2010, the share of agriculture in national GDP ranged from 14.3% to 10.6% and the share of food industry ranged from 5.3% to 4.8% (Tomić, Njegovan, 2013). Also concerning the period 2001-2012, food, beverage and agriculture was the second sector by FDIs, more than telecommunication, retail and automotive industry. In 2010 the Serbian Government declared agriculture to be of strategic economic importance; this role was reinforced during the recent election campaign.

Despite its economic and political importance, the Serbian agricultural sector is still hampered by a variety of constraints limiting its full potential (Pejanović, Njegovan, 2009). Aside from outdated production technologies and machinery, the lack of adequate infrastructure (e.g. storage/cooling facilities) and inadequate irrigation and drainage systems, the lack of sufficient agricultural finance in comparison to other sectors is considered by many observers to be one of the major impediments to the growth and development of the sector (Njegovan et al., 2009). Agriculture accounted for only 2.7% of the Serbian 2011 budget, with half of this amount consisting of budget-financed subsidies for price and input support (Njegovan, Draganić, 2013). Officially, only about 3% of bank loans are in the agricultural and food processing industry. This number, however, might actually be higher due to the fact that banks use different classifications, classifying those loans as corporate, industrial, retail, or other.

Current status of agribusiness financing

The conclusion reached in the assessment is that the Serbian financial sector offers a wide range of loan products to the agricultural sector (Petraković et al., 2003). The list of active lenders in this market includes banks, state funds, leasing companies, microfinance organizations and integrators. Many of the interviewed lenders have a large number of agricultural loan products available that include grace periods, production-contract collateralization, equipment finance and input credit, among others, table 1. However, agribusiness finance is significantly constrained both in terms of tenor and of local currency availability.

Table 1. Overall Lending to the Agricultural Sector by Organization Type

No.	Name of the Bank	Value in EUR	Structure in %
1	Banca Intesa	58,601,000	8.86%
2	Nova Agrobanka	47,306,835	7.15%
3	Komercijalna Bank	45,185,983	6.83%
4	Societe Générale	35,385,930	5.35%
5	AIK Bank	24,457,922	3.70%
6	Hypo Alpe-Adria-Bank	22,971,791	3.47%

No.	Name of the Bank	Value in EUR	Structure in %
7	Credit Agricole Bank	18,378,504	2.78%
8	Raiffeisen Bank	17,367,948	2.63%
9	UniCredit Bank	16,395,913	2.48%
10	ProCredit Bank	16,358,052	2.47%
11	State Funds (Dev't Fund, etc.)	153,780,303	23.25%
12	Leasing Companies	38,022,600	5.75%
13	Microfinance Organizations	6,650,000	1.01%
14	All Other Banks	60,650,183	9.17%
15	Integrators (est.)	100,000,000	15.12%
Total		661,512,964	100.00%

Source: NBS, internal data (June 2012) and author's analysis.

Agribusinesses face significant constraints in their access to finance due to high risk aversion (Njegovan, 2005) and lack of market understanding by *banks*. The top five agricultural lenders in Serbia by volume are Banca Intesa, Nova Agrobanka, Societe Générale, Komercijalna Banka, and AIK Banka. Even those banks that strongly support the agricultural sector indicated that the primary reason for loan-applicant rejections was the perception that the creditworthiness of borrowers in agribusiness was weaker than of those in other sectors. In addition, there are numerous banks are reluctant to target the sector due to this same perceptions. Bank loans to agribusiness are predominately loans with shorter maturity (72% of all loans being for three years or less) and primarily extended to larger agro-processing businesses. Most loans (62%) are made in EUR despite the fact that most agricultural production is for domestic consumption and is paid for (approximately 78%) in RSD. Therefore, financing of long-term investment in RSD presents a significant constraint to the sector, and is a particular challenge for farmers and agribusinesses with RSD income. Banks are more active in lending to agriculture in AP of Vojvodina and most of them prefer to offer general products that can afterwards be structured for each borrower, which indicates they are not focused on providing value to their agricultural clients in terms of new, agro tailor-made product development. According to the NBS there is approximately EUR 419 million in outstanding loans to this sector as of end-of-year 2011.

It is worth of mentioning that the high level of "euroization" of Serbia's economy is a factor increasing currency risk for borrowers. As of end 2011, the euroization ratio of the total loan stock was, according to the NBS, slightly more than 77%, while euroization on the deposit side was close to 70%. Serbia has embarked upon a strategy for deeuroization. However, a significant risk for banks remains their indirect foreign currency exposure. Due to the high level of foreign exchange credit, banks are indirectly affected by exchange rate appreciations that reduce the ability of borrowers whose revenues are not in foreign exchange to service their debts, which is the majority of agro sector.

In addition to banks, a number of other institutions are active in financing the Serbian agricultural sector. The estimated agricultural portfolio held by *non-bank organizations* is around EUR 252 million.

Leasing offers the potential to overcome some of the traditional challenges in agricultural financing, by providing an alternative solution for farmers and SMEs with limited collateral and credit history. Although financial leasing companies are well-established in Serbia, they are mainly focused on transport and automobile financing because of strong enterprise and consumer demand, as well as a liquid secondary market for vehicles. The top five agricultural lenders in Serbia by volume are Banca Intesa, Nova Agrobanka, Societe Générale, Komercijalna Banka, and AIK Banka. Concerning agricultural leasing it is a small fraction of the overall level of equipment financing provided by the leasing companies. It is limited to tractors and combines and a very few medium-size equipment investments, thus arriving at an average of about 6-7% of the overall portfolio of all leasing companies. Same as with bank loans, the bulk of products were either foreign-currency-denominated or foreign currency clause indexed.

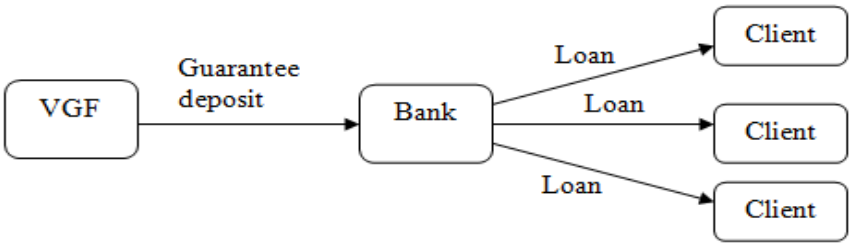
Table 2. Agricultural leasing as percentage of overall number of new leases

Leases with New Clients	2011	2010
(Total) All Leases with New Clients (EUR)	256,982,328	202,939,010
(Total) Agricultural New Business (EUR)	15,604,756	14,288,920
Agricultural New Business (% of Total)	6.07%	7.04%

Source: Leasing Association of Serbia, internal data (2012) and analysis of authors.

There are a number of *state-owned organizations and funds* that provide lending or support to lending for the Serbian agricultural sector (Njegovan, Pejanović, 2009). The *Serbian Development Fund* does not break down the size of its portfolio by sector; however, a breakdown of current outstanding loans made to the agricultural sector since 2007 gives the estimate of EUR 134 million. The terms and conditions of these loans are very favourable, with significantly lower interest rates than those available in the market. *Export Credit and Insurance Agency of Serbia - AOFI* have stated that they provide a significant level of support to the agricultural sector mainly via food-processing exporters. They estimated their exposure to the agricultural sector to be roughly EUR 20 million, which is 33% of the capital of *AOFI*. In this context, the level of agricultural support by AOFI as a portion of its capital is significantly in excess of the sector's share of total exports of Serbia, which stands at 21%. Vojvodina Guarantee Fund (VGF) provides guarantees to agribusiness, Graph 1.

Graph 1. Structure of Lending by the VGF



Source: AP Vojvodina Guarantee Fund, internal data, 2012.

To date, they have guaranteed a portfolio of approximately EUR 20 million in the agricultural sector, of which EUR 10 million is current. Due to the lack of adequate regulation, the Vojvodina Guarantee Fund is registered with the Vojvodina Secretariat for Culture. This prevents the institution from sourcing additional funds in the market (through bank loans, bond sales or securitization).

The *Vojvodina Provincial Fund for Agricultural Development* has approximately EUR 15 million in its portfolio and about 1,000 borrowers who have borrowed at lower than commercial rates. Fund invests through two commercial banks due to the regulation that prohibits fund to directly lend money. Their main clients are farmers and, to some degree, SMEs. Three years ago Serbia established the *Indemnity Fund of Serbia* as a government entity responsible for system of public warehouses designed to support agribusinesses and lending to agribusinesses. The success of this fund has resulted in the introduction of warehouse receipts that are recognized by the NBS as adequate collateral for bank loans to agribusinesses.

Three non-bank *microcredit institutions* – MFI operate in Serbia at present, and all are forced to issue loans through commercial banks due to the lack of regulation for non-bank, non-deposit taking financial institutions. Their combined total portfolio is approximately EUR 16 million, spread across over 16,500 borrowers. Microcredit is made up mainly of entrepreneurial and agricultural production loans based on internationally accepted methodologies, ranging from EUR 300 to EUR 3,000, with the average loan amounting to between EUR 900 and EUR 1,100. MFI loan funds are mainly composed of donor capital and accumulated profits. AgroInvest, the largest of the three providers, accesses commercial credit from foreign social investors and international banks.

Food-processing companies, *integrators*, are an important source of lending and liquidity for farmers and SMEs in Serbia, although this is not measured in any formal way. Companies engage in barter operations with their suppliers (*parity)* in which they take inputs in exchange for crop sales upon harvest. In those cases the price is set according to parity at the time of contracting, prior to post-harvest delivery. Some estimates put this amount at a significant EUR 100 million at least.

In recent times, many major buyers/traders have started offering agreements with clearer input values, end product value, as well as more clearly expressing interest rates. Now the farmer repays the loan in commodity at market price on the day of the repayment at a more transparent rate rather than the usurious rates prevalent in the 1990s and early 2000s. There have been efforts by agricultural cooperatives and farmers' associations to gain more transparency on the terms and conditions of such financing to the sector. However, the mark-up terms (particularly for input prices of some types of seeds and fertilizer) are generally often unclear and in many cases lack an explicit "effective annual interest rate" that may better inform the farmers about the actual costs of this type of financing.

Food processing companies provide necessary resources through their own income or by retained earnings, in addition to accessing needed funds from banks. As a rule, it is not difficult for them to obtain loans, which are guaranteed by property (grain silos, production

plants, etc.). These loans are not formally registered as agricultural loans, and the NBS does not require banks to specify in great detail the use of the loan by a borrower, only the general category. Borrowing levels for the main crops in Serbia in terms of the costs of basic production inputs, an analysis is provided here on the source of this estimate and the overall total of integrator finance. Assuming here, that 60% of the approximately 300,000 unregistered farmers borrow their primary input costs on their average ownership of 1 hectare of land, it can be seen the following: 180,000 hectares x average price of seeds per ha of EUR 200 = EUR 36 million; 180,000 hectares x average price of fertilizer per ha of EUR 250 = EUR 45 million; and 180,000 hectares x average price of pesticide per ha of EUR 100 = EUR 19 million, that gives the total sum of approximately EUR 100 million per year.

Also it may be recognized the participation of *private equity funds* (Salford and InBev being two large food-related investments). They still do not invest in Serbian agriculture. Discussions with a private-equity practitioner in Belgrade indicated that private equity is limited by the same factors limiting FDI, which are beyond the scope of this agricultural lending study.

Major constraints to agribusiness financing

No single factor can explain why access to finance for agribusiness and farmers is poor. It is a complex of constraints that are interlinked and influenced by a variety of legal, economic, institutional, and behavioural factors. All those constraints can be broadly summarized as follows: inconsistent agricultural policy; inefficient subsidy programs; regulation disincentives or lack of regulation; few alternative sources of finance; lenders' knowledge and perception of risk in agribusiness; weak market leverage of agribusinesses; borrowers' psychology, knowledge and access to information; not taking advantage offered by the value chain concept; and high risk of the sector.

Banks that are focused on lending to agribusinesses pointed out the uncertainty in planning, inconsistency of Serbian agricultural policy, poorly-designed interest-rate subsidy programs and lack of borrowers leverage as the main obstacles to increasing lending. The relevant ministry has a high turnover of key people and changes priorities very often. This leads to unpredictability in cash flows in agribusiness and decreases the creditworthiness of potential clients. Interest rate subsidy programs do not involve consultation with the financial sector when the programs are designed, and as a result the way the programs are constructed in does not motivate banks to increase lending to the sector. Furthermore, subsidized loans negatively influence the credit market by sending wrong signals to agribusinesses about financing costs. The lack of an effective Cooperative Law and no efficient agribusiness associations hinder banks' ability to offer products that do not rely on creditworthiness of individual borrowers. Outreach costs could be decreased by enabling lenders to better support the activities of tens or hundreds of producers via one cooperative, rather than being forced to contract with hundreds of farmers individually.

Banks that are not focused on lending to agribusinesses see the lack of desire on the part of bank owners/shareholders and upper management to increase exposure to this sector as the main constraint. They cite too many unresolved issues related to the policy environment, and too much uncertainty about the ability of agricultural producers and processors to meet their obligations, as the fundamental reasons for those strategic decisions. They also point out that only a small number of agricultural producers are included in modern market chains as they are largely uncompetitive, in addition to not having requested collateral, primarily high value real estate. In many cases the buildings are unregistered and land registers are incomplete. Furthermore, procedures for loan debt collection and contract enforcement are particularly very long in the rural areas of Serbia.

Constraints faced by the non-bank lending sector are mainly related to regulations. The lack of regulation for non-deposit taking credit institutions, combined with the official view that only banks can take lend money as their daily business, leaves this sector underdeveloped and unable to serve one segment of the market. In case of leasing, regulation on VAT results in leasing being less attractive to the clients than a bank loan. There is no regulation of operating leasing. This lack of regulation or lack of suitable regulation has negative impact to all SMEs, but due to specifics of agro sector it is even more prominent in case of agribusinesses.

Recommendations to improve access to finance for agribusinesses

Based on the interviews, discussions and research conducted, we make the following recommendations to facilitate an increase in the agricultural lending of commercial banks, non-bank lenders and state entities currently engaged in lending to farmers, agribusiness SMEs and agricultural cooperatives. The recommendations focus on measures that will help lenders to assess the creditworthiness of borrowers more favourably, and also to improve the lending environment in terms of legal, regulatory and similar constraints identified as pertaining to the agricultural sector.

These recommendations, serve to address many of the constraints identified by the lenders in terms of their outreach to the agricultural sector. On the basis of the key information learned from the lenders and background research, these recommendations are outlined as those that should be addressed by the government, financial institutions, or agribusinesses.

The recommendations addressed to the government include: improving the formulation, timeliness and implementation of Serbian agricultural policy measures; improving the legal framework for lending to agribusinesses; and improving government support mechanisms and the institutional framework.

1. Improve the formulation, timeliness and implementation of Serbian agricultural policy measures:

- Establish an Agro Sector Financing Data Initiative.
- Put the agribusiness policy into the right context

- Develop Agribusiness Development Strategy and set of policies
- Establish Agribusiness Council and intergovernmental Working Group on Agribusiness Development.
- Increase the capacity of the Directorate for Agrarian Payments and the Ministry of Agriculture.

2. Improve the legal framework for agribusiness:

- Develop and adopt a new Law on Agricultural Cooperatives.
- Develop and adopt the Commodity Exchange Law.
- Improve leasing regulation.
- Develop regulatory framework for the non-banking financial sector.
- Explore possibilities for improving banking regulation.

3. Improve government support mechanisms and institutional framework:

- Supporting innovations through government mechanisms.
- Introducing partial guarantees and risk sharing facilities.
- Establish the Agricultural Cadastre.
- Increase number of "public warehouses" and use of warehouse receipts.

Recommendations addressed to agribusinesses. Feedback from lending institutions indicates that borrower risk aversion, misperceptions, poor knowledge, and a weak credit culture are contributing to financing challenges and leading to negative sentiment. Furthermore, agribusinesses, and especially farmers, often lack the capacity to present their business to lenders. The challenges are compounded if they have limited or no formal credit history or cannot unwind business finances from their household finances (which is almost always true in case of farms), participate in the informal economy, etc. Most of these challenges can be overcome through the active efforts of agribusiness, business associations and clusters, as well:

- Strengthen the capacities of farmers and agribusinesses to access formal finance.
- Strengthen the capacity of business associations and clusters to improve access to finance for their members.
- Strengthen the capacity of business associations and clusters to advocate for reforms to improve access to finance for agribusinesses.
- Building capacity of value chains.
- Develop an agribusiness financing portal.

Recommendations addressed to the financial sector. Recommendations listed here serve to address many of the constraints identified by lenders that can be partially overcome if properly addressed by the financial sector (Galić et al., 2012). The recommendations are focused only on agribusiness-specific issues, excluding those that would generally improve access to finance for SMEs in Serbia: Develop agricultural insurance; Develop specialized credit skills and policies; and increase value chain finance (Miller, Jones, 2010).

Conclusion

Despite the economic, social and political importance of the Serbian agricultural sector, its growth is still significantly slowed by a large number of constraints. However, major opportunities are present in Serbian agriculture. Emerging hypermarkets and increased incomes are leading to a higher domestic share of consumption of fresh and processed vegetables, which will directly influence the development of supply channels within the sector. Additionally, growing market linkages with nearby EU market chains have been causing local investors to move forward with investments in facilities. These investors, and their growers and suppliers located in Serbia, will need significant increases in financial support in the context of agricultural lending in order to meet their goals.

The conclusions of this study show that agricultural finance is provided at a much lower level in Serbia than would be anticipated judging by the importance of this sector to the country's economy and GDP. After detailed discussion of these issues with lenders and desk research, a number of specific interventions have been proposed here, especially as pertains to the roles of the MoA and MoFE in the facilitating environment for agricultural finance. Moreover, much can be done by agribusiness, the financial sector and in cooperation between those two without the government being involved.

The successful implementation of these policy recommendations can be expected to serve as substantial support for the development of agricultural lending in Serbia, particularly at the level of SMEs, start-ups, entrepreneurs, SMEs needing agricultural equipment, as well as of input financing for unregistered farmers.

These recommendations and findings have the support of the local stakeholders interviewed, including banks, leasing companies, most state funds, MFIs, business associations, etc. With a new government taking office, it is now a propitious moment to look into the possibilities of a strengthened research and lobbying effort, and to focus attention on the resolution of constraints to access to finance by agribusinesses.

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FINANSIRANJE POLJOPRIVREDE U SRBIJI: STANJE I PERSPEKTIVE

Ana Jolović[5], Zoran Njegovan[6], Mirolsav Čavlin[7]

Rezime

Srpska poljoprivreda već godinama ostvaruje relativno ograničene efekte. Jedan od značajnih faktora jeste neprilagođenost finansijskog sistema njegovim potrebama uprkos činjenice da postoji značajan broj različitih izvora finansijskih sredstava. To doprinosi da se dostupnost finansijskih sredstava za farmere i poljoprivredna MSP može oceniti kao najmanje adekvatna u poređenju sa drugim sektorima. Sprovodeći istraživanje o stanju i perspektivama finansiranja poljoprivrede u Srbiji, autori su postavili cilj ovoga rada da utvrde najveći broj relevantnih faktora na strani dosadašnjeg načina finansiranja, uoče tendencije postepenih promena u načinima finansiranja, kao i da ukažu na značaj dalje izgradnje ukupnog sistema agrarnog razvoja i infrastrukture, posebno na segmentu koji je od značaja za finansiranje.

Ključne reči: *finansiranje, poljoprivreda, finansijske institucije, izvori finansiranja, banke, lizing organizacije, finansijski i razvojni fondovi, mikrofinansijske organizacije, integratori.*

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MITIGATION A HARMFUL EFFECTS OF LIVESTOCK ON THE ENVIRONMENT IN UKRAINE

***Oleksandr Labenko*[1]**

Summary

The potential to reduce the sectors (livestock) emissions is large. Technologies practices that help reduce emissions exist but are not widely used. The adoption and use of best practices and technologies by the bulk of the world's producers can result in significant reductions in emissions.

The FAO report indicated that the emissions could be reduced by between 18 and 30 percent (or 1,8 to 1,1 gigatones CO_2 – eq), if producers in a given system, region and climate adopted the practices currently applied by the 10 to 25 percent of producers with the lowest emission intensity.

Most of the technologies and practices that mitigate emissions also improve productivity and can contribute to food security and poverty alleviation as the planet needs to feed a growing population.

Under the conditions of the limited financial resources for the purpose of the implementation *of government programs to minimize the harmful farm animal waste, such funds can be raised by participating in the emissions market.*

Key words: *manure management, funds, trade schemes.*

JEL: *Q160, Q280, H230*

Introduction

According to the forecast, population will grow up to 8, 92 billion by 2050 (DESA) as a result, food crises will be strengthened. The agriculture development may solve the food crises issue, especially - livestock. But if we increase the size of livestock production the volume of CO_2 pollution will also increase in the world. In this research we analyse, how an animal husbandry will be developed in Ukraine and the ways of mitigation the volumes of harmful emissions of CO_2.

Greenhouse gas emissions by the livestock sector could be cut by as much as 30 percent through the wider use of existing best practices and technologies, according to a new study

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released today by the UN Food and Agriculture Organization (FAO), (Gerber et al., 2013).

The three major GHGs (greenhouse gases) emitted from food and agriculture chains are covered - namely methane (CH_4), nitrous oxide (N_2O) and carbon dioxide (CO_2).

Greenhouse gas (GHG) emissions associated with livestock supply chains add up to 7.1 gigatonnes (GT) of carbon dioxide equivalent (CO_2-eq) per year, or 14.5 percent of all human-caused GHG releases (Gerber et al., 2013).

The main sources of emissions are: feed production and processing (45 percent of the total), outputs of GHG during digestion by cows (39 percent), and manure decomposition (10 percent). The remainder is attributable to the processing and transportation of animal products (Gerber et al., 2013).

According to the World Bank date, number of animals per 1ha of agricultural lands in Ukraine was close to 45 thousand units in 2011. At the same time, this index in the countries of the European Union is lower - 20 thousand units, the world's index shows about 16 thousands units (World Bank). On the one hand, increasing the number of animals positively influences on food supply, but the others, there is a negative factor of influence a stockbreeding on environment - greenhouse gases emissions.

GHG emissions from manure management consist of methane and nitrous oxide gases from aerobic and anaerobic decomposition processes. The FAOSTAT emission data are computed at Tier 1 following (IPCC, 2006).

The term manure includes both urine and dung (i.e., both liquid and solid material) produced by livestock. More specifically, CH_4 gas is produced by anaerobic decomposition of manure stored or treated, while N_2O is produced directly by nitrification and de-nitrification processes in the manure, and indirectly by nitrogen (N) volatilization and re-deposition processes, as well as from leaching of manure N.

The wider use of anaerobic digestion results in lower CH_4 emissions and generates biogas that can substitute other form of energy (Gerber et al., 2013).

The mitigation potential ranges from 11 to 14 percent in Western Europe and from 11 to 17 percent in Australia and New Zealand. It is higher in North America (25 to 28 percent) due to the greater potential of replacing manure lagoons with anaerobic digesters (Gerber et al., 2013).

By estimates (Gerber et al., 2013), potential in CO_2 reduction is 2,4 % due to its decreasing of emission in the OECD Members States in Western Europe.

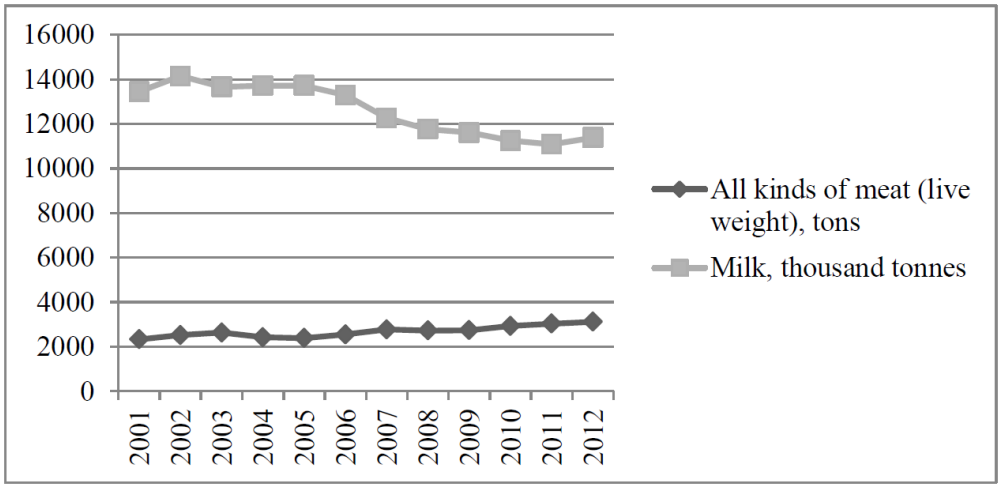
Research Results

During the last decade we could observe livestock recession on all animal species in Ukraine. But looking at that the fact that Ukrainian cattle livestock were in five times more in 1991, so the potential to accumulation of their quantity rather considerable. At the end of 2012 in Ukraine the output of all types of producing of meat make about 3000 thousand tons and about 12000 thousand tons of milk (Figure 1).

Stockbreeding is a source of formation of renewable source of energy and makes the biomass in the form of manure which in turn is an organic fertilizer. At the same time, it is inefficient to use everyday manure during 3 years. After its processing by biogas installation, it can be used at once, because the remaindering mass are prepared, environmentally pure, firm bio fertilizers (humus), without nitrates, seeds of weeds, pathogenic micro flora, eggs of helminths and the other harmful elements. In turn, manure processing by biogas can give the people threefold benefits:

1) New source of power
2) Reduction of greenhouse gases emissions
3) Fertilizers.

Figure 1. The output of major livestock products in Ukraine



Source: www.ukrstat.gov.ua

Mitigation policy approaches available to policy makers are not unique to climate change or to livestock. They are broadly the same for most environmental management and development issues (Gerber et al., 2013).

Extension and agricultural support services: this suite of approaches facilitates practice change for mitigation and development by providing access to improved practices/ technologies, knowledge and capacity for their application and information about emerging market opportunities. Commonly used approaches include communication, training, demonstration farms and networks to facilitate linkages among sector stake-holders.

Research and development: research and development is necessary to build the evidence base for mitigation technologies/practices. It can play an important role in refining existing technologies/practices to increase their applicability and affordability, and is also necessary for increasing the supply of new and improved mitigation technologies/practices.

Financial incentives: includes either 'beneficiary pays' mechanisms (abatement subsidies) or 'polluter pays' mechanisms (emissions tax, tradable permits). These are economically efficient mechanisms for incentivizing the adoption of mitigation technologies/practices.

Regulations: includes assignment of mitigation targets for farmers/sectors, as well as more prescriptive approaches such as mandating the use of specific mitigation technologies and practices.

Market friction instruments: includes instruments that seek to increase the flow of information about the emissions associated with different livestock commodities (e.g. labelling schemes). This can help consumers and producers to better align their consumption and production preferences with the emission profiles of these commodities.

Advocacy: includes the raising of awareness about livestock's role in tackling climate change to influence and promote mitigation policy development for the sector (e.g. through intergovernmental representation of this issue in the UNFCCC (United Nations Framework Convention on Climate Change) negotiation process).

In this research the main attention is paid to the government support of biogas production. The biogas installations, creating in Europe, can be divided into three categories. To the biogas installations of the first category concerned: receiving a biogas from manure, use of the dumped amount as organic fertilizers, ensuring the requirements of household in heating and electricity. Installations of this type differ by simplicity and high level of standardization. They usually consist of reservoirs for previous accumulation and storage of manure, bioreactors with management, mixing and heating systems, reservoirs for storage and further processing of the dumped biomass, pumps for loading and unloading, the equipment for keeping and transportation of biogas, and also the heat power module for heating and electricity generation.

To the second category refers: powerful installations on the manure processing, which designed as for using in large-scale livestock enterprises, and for the satisfaction of general requirements for several farms. Usually such gas installations are used mixing mass: dung and other types of organic waste, which has some blocks. The block of previous storage contains separate reservoirs for both manure and other organic substances, and the reservoirs for biomass homogenization. Bioreactor is the steel container, equipped by the systems of automatic management. The dumped mass of household used as an organic fertilizer, received biogas is turned into thermal and electric energy using the universal heat power module. Heat Exchangers are applied in these biogas installations, its use heat of had already processed weight, for a warming up raw material at an entrance. The anaerobic fermentation occurs usually in a thermophilic mode (which conforms to the requirements more). The efficiency of installations depends on its sizes directly; the powerful enterprises have the smaller processing cost per one cubic meter of biomass.

The third category of biogas installations consists of it's the most powerful units which are used for processing of organics with various origin. They allow receiving biogas both as from firm, and liquid organic substances. Great attention is paid to preparation raw materials for a digestion. In certain cases, the additional operation of hydrolysis of biomasses is

imposed for increasing the efficiency of an anaerobic fermentation. Fermented waste with the big content of solid can be exposed to further processing for improvement it's quality as an organic fertilizer by an aerobic composting, and liquid can be utilized after additional cleaning (Klimenko, 2006; Matveev, 2004).

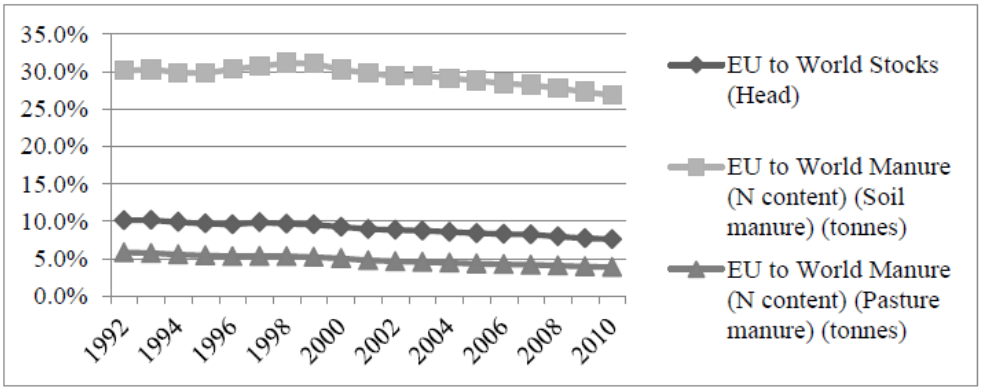
Outputs of products of animal husbandry in Ukraine have been decreasing over the last 10 years but the volume of an exit of manure is still considerable.

For the evaluation of volumes of manure in Ukraine we will try to compare it with the volume of EU countries and the whole world.

The term manure includes both urine and dung (i.e., both liquid and solid material) produced by livestock. More specifically, CH_4 gas is produced by anaerobic decomposition of manure stored or treated, while N_2O is produced directly by nitrification and de-nitrification processes in the manure, and indirectly by nitrogen (N) volatilization and re-deposition processes, as well as from leaching of manure N.

Data for buffalo, sheep, goats, camels, llamas, horses, mules, asses, pigs, ducks, turkeys, chickens and dairy cattle are taken directly from FAOSTAT (domain: Production), non-dairy cattle is derived from FAOSTAT categories, specifically as cattle minus dairy cattle.

Figure 2. The EU share in manure management in the world

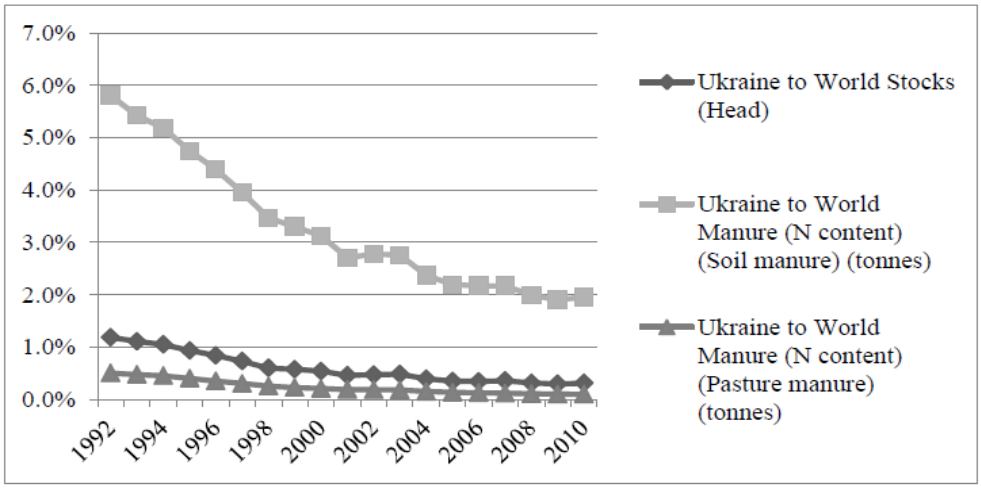


Source: FAOSTAT

Environmental pollution isn't limited by the state border that is why it is necessary to estimate volumes of harmful emissions in comparison with other states and together to carry out measures for their minimization. That is why, universal and European (EU) indicators were chosen for comparison with manure volumes in Ukraine. Estimating the amount of manure produced by animal husbandry in the EU, we can note that a share of the EU in universal stockbreeding decrease within the last two decades (1992-2010). It testifies that in the other countries of the world the livestock of animals increasing more rapidly than in EU countries (Figure 2).

The contribution of Ukraine in universal producing manure is much more modest than in the EU (Figure 3).

Figure 3. The Ukrainian share in producing manure in the world

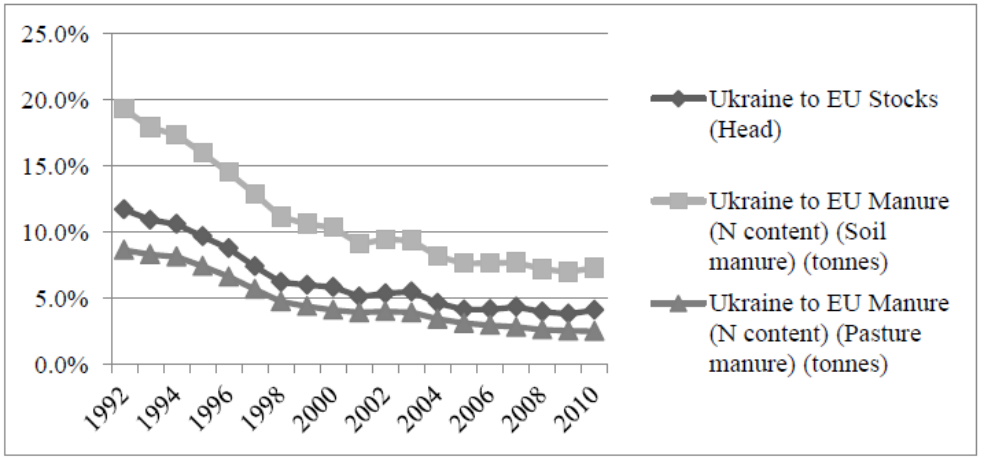


Source: FAOSTAT

Share of a universal producing of dung in Ukraine is decreased for the last two decades. So, if in 1992 the share of a fertilizing the soil in Ukraine made about 6%, in 2010 this index was 2%. It testifies for the considerable recession of a livestock of animals in Ukraine.

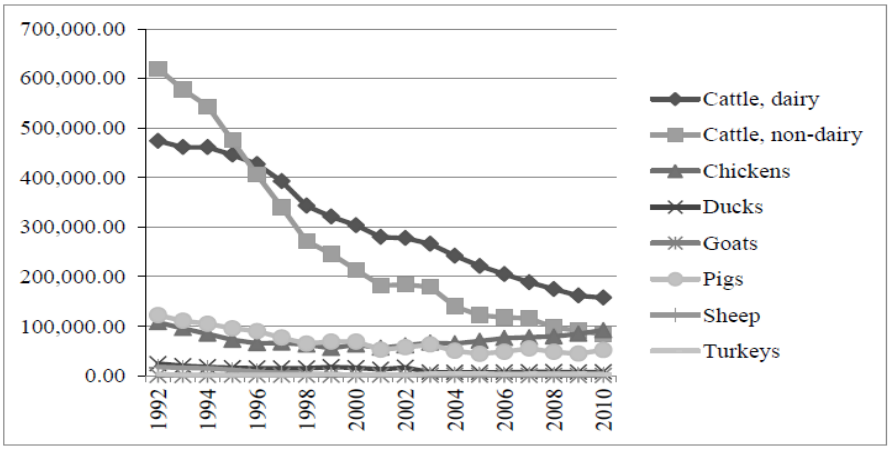
The Ukrainian share of producing the dung in EU is slight, in 2010 the share of dung brought in the soil made about 7%. Thus mentioned share in 1992 was about 20% (Figure 4).

Figure 4. The Ukrainian share in producing manure in the EU



Source: FAOSTAT

Figure 5. Manure (N content), (Manure Management) tonnes, Ukraine



Source: FAOSTAT

The volumes of substrate greatly decreased in 2010 to the indicator in 1992, it was about 29%, during the analysed period. The recession was occurred on all species of animal. But the volumes of substrate remain is still considerable, so in 2010 the volume was - 400 thousands of tons.

During the analysed period 1992-2010 Ukraine has reduced the volumes of manure due to decreasing a livestock of animals. The only positive side that can be considered is decreasing the falling rates of a productive share of manure in Ukraine.

In 2012 in Ukraine the physical volumes of manure were about 5062 thousand tons that make up about 1% of all formed wastage in Ukraine (Table 1). Besides, volumes of wastage have been increasing from year to year. So, the need of processing the wastage becomes more and more necessary for the purpose of decreasing a harmful effect on an environment.

Table 1. Generation of waste in Ukraine by categories of materials

Indicators	Units of measure	2010	2011	2012
Total	thousand tons	419191,8	447641,2	450726,8
	%	100	100	100
Animal and vegetable waste	thousand tons	15424,2	12820,6	12850
	%	3,7	2,9	2,85
Animal waste received from the manufacture of food products and preparations	thousand tons	-	360,9	267,5
	%	-	0,1	0,1
Animal excrements, urine and manure	thousand tons	3796,9	7754,6	5062
	%	0,9	1,7	1,1

Source: www.ukrstat.gov.ua

Generally, the activity of waste recycling can be profitable. You can receive a lot of secondary raw materials because of the results of processing.

Policies based on extension and financial and regulatory incentives will also play an important role in stimulating the adoption of grazing management practices. Again, the economic attractiveness of the various practices for enhancing soil carbon stocks will help to inform which combination of these policies is better placed to support these practices (Gerber et al., 2013).

Further, while research and development initiatives are essential for the provision of new and improved mitigation options for the sector, financial regulatory incentives can also drive mitigation technology development by the private sector. By making emissions costly or mitigation profitable, these policies will motivate the livestock industry to search for and develop less emission-intensive practices and technologies (Gerber et al., 2013).

As I have mentioned above, manure processing has three useful factors. Taking into account that the cost of energy resources grows constantly, implementation of biogas installations on the enterprises with animal husbandry will allow making the costs of energy resources lower and fertilize annually.

Let's try to determine the volume of biogas which is possible to produce from all quantity of a substratum made in Ukraine. In 2010 volumes of substrata was 400 thousand tons of all animal species. According to the source (ATSL) it is possible to determine the volumes of biogas which can be allocated from different types of substrata. As it is impossible to find the data of substrata types, we assume that the minimum quantity of biogas can be made from a substratum - the fluid manure of cattle, which is no less than 25 m^3 per a substratum ton. Based on these data, we can affirm, that in Ukraine the potential volume of biogas can be 1 million m^3. Thus, 54 million m^3 of natural gas was used in Ukraine in 2012 (UGM, 2012).

One of a factor of decreasing of greenhouse gases emission from a livestock is its government support by compensation of share of an interest rate of the credits for new technologies which will reduce the greenhouse gases emissions.

Agriculture in global economics is one of the most protected and "closed" branches. The main method of protection is to give a huge volume of subsidies to the agricultural producers. Annual expenses of WTO member countries for agriculture reach dozens of millions US dollars (Erohin, Ivolga, 2012). Considering the fact that Ukraine is a member of WTO, but by this organization support of agriculture is restricted and unlimited in the different directions, in particular, support of biogas production may be unlimited by compensation of an interest rate. So, implementation the programs of a state support of biogas production by agricultural enterprises can promote their higher development and profitability.

As in Ukraine there is no similar program, it is necessary to enter such program in our motherland, considering a wide experience of it implementation in other countries in the world. In recent years is observed chronic insufficient financing of all state support programs

connected with agricultural production (Zhyk, 2011). Although, you should not hope for the fast implementation of the program, mentioned above. But the source of financial resources still exists, for introduction the state support program for agricultural producers who reduces emissions be a greenhouse gases.

One more factor causing the need of introduction of biogas installations is the Kyoto Protocol, according to which Ukraine has undertook to reduce emissions of greenhouse gases.

Carbon markets, in which carbon emission permits and reductions can be traded, have been put in place by a number of countries and jurisdictions to curb GHG emissions. Putting aside the lack of concerted political commitment to reduce emissions, which affects the penetration of all mitigation policies alike, carbon markets have, in general, functioned reasonably well, and are slowly growing rather than shrinking (Gerber et al., 2013).

Despite this progress, carbon markets currently provide very limited mitigation incentives for the sector. They either do not include livestock sector emissions or provide only a limited coverage. This is partly due to difficulties in accurately and cost-effectively measuring emission reductions. However, with continued research and development to improve measurement methodologies and the ongoing evolution of market-based instruments, the role of carbon markets should increase over the long term (Gerber et al., 2013).

The volume and value of emissions traded on the Kyoto-compliant markets as a whole grew by 114 percent and 31 percent, respectively, between 2008 and 2011. The volume and value of emission allowances traded in the EU Emission Trading Scheme, the world's largest and most liquid carbon market, grew by 153 percent and 47 percent, respectively, over the same period. However, the combined effects of the current global recession and lower than projected emissions have caused an oversupply in EU emission allowances, and prices have been falling since 2008.

Furthermore, these market-based mechanisms have not played a role in the mitigation of livestock emissions because none of them includes agriculture, except for the Carbon Pricing Mechanism in Australia which is linked to a carbon EU Emission Trading Scheme caused a large fall offset scheme known as the Carbon Farming Initiative (Gerber et al., 2013).

In addition to carbon markets, there is a range of complementary sources of mitigation finance. These include multilateral funding sources such as the Green Climate Fund, the World Bank, and the Global Environment Facility, as well as domestic funding sources such as national development banks and nationally sponsored climate funds (e.g. the Spanish Carbon Fund), which are making increasing contributions to mitigation finance. There may also be good opportunities for the public sector to design financial instruments to attract private sector co-investment into mitigation projects, perhaps by managing risks that the private sector is not willing to take on (Gerber et al., 2013).

Conclusion

Taking part in the trade system of greenhouse gases emission there is a possibility of mobilization of financial resources for financing the program of biogas production. So, introduction of a state support program of biogas production from animal substrata has a potential source of financial resources - trade in limits on harmful emissions. The potential minimum volume of biogas is 1 million m^3 in Ukraine. While reduction of harmful emissions from animal husbandry will be reached and received an organic fertilizer ready to entering into the soil.

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Review Article

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THE SELECTION FACTORS OF CONSULTANTS IN SERBIAN AGRO-SECTOR[1]

Branko Mihailović[2], Boban Birmančević[3], Miloje Obradović[4]

Summary

The selection of consultants should be paid special attention, because in Serbia, or its agro-sector, the awareness of the criteria for the selection of consultancy services is not sufficiently raised. The research itself is based on the assumption of manager experience and knowledge gained by reading expert books, greeted with scepticism. Thus, the relevance of certain criteria for the consultant selection is in the form of a hypothesis, with the aim to determine the real situation in this field. Determination of consultant selection basic factors in Serbia is imposed by the law of nature. The process of selecting a consultant starts with defining the requirement of the consultancy task and criteria for the degree of performance of the task. This process usually leads to the reference list that a consultant is supposed to have.

Key words*: consultant selection criteria, consulting organizations, quality management system, agro-sector.*

JEL: *M21, Q 13*

Introduction

The managers in companies spend most of time and expend considerable energy in identifying and analysing business problems, tending to find efficient solutions. Internal management teams solve the most of problems in the field of management within daily routine activities. One's a problem is solved, there appears the other on which should focus and this is the way

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business perform. However, there appear also non-structural problems on which cannot be applied routine solutions. They become a subject of serious consideration. Often happens that managers avoid them, or talk about them, but no decision has been made.

Causes for such business problems are numerous and often mutually interweaved. It is usually about innovations, ambiguities, complexity, fast changes of problem essence and size, conflict of interest, long-term impacts to future business, etc. In some situations is more purposeful to engage a consultant to solve such problem, but to spend time and assets while searching the solutions which exceed the company's capacity. Some managers do not identify the business problems and arguments „pro" and „con" use of consulting services, but are guided by a feeling that a consultant can do a job.

On the other hand, a decision on using the consulting services can be emotionally coloured, if a manager is impressed by broad knowledge and professional approach of a consultant. Nevertheless, the managers have to be pragmatic. Accordingly, the managers must have characteristics like: creativity, innovativeness, imagination, high motivate, leadership, as well as a practice to communicate verbally and in written form. In order to manage the company successfully, the manager must have self-confidence, ability of quick troubleshooting, planning, business skills, skills in relationships and awareness on personal virtues and deficiencies (Sajfert et al., 2008).

If the manager is serious in attention to use the consulting organization, he primarily wants to be sure if his decision will be completely justified and supported within the company, that there will be selected adequate consulting organization and that the company will have clearly defined positive effects from a consulting project.

Taking into consideration the criteria of selecting the consultants, analysed by famous researcher and consultant in this field (Kubr, 1995), in this paper has started from the following hypothesis: *Decisive criteria for selecting the consultant in Serbian agro-complex, by the hierarchy, are: professional integrity, professional qualification, capability for doing business, price of consulting service, cooperation and relation with clients, project task draft, potential for mobilizing additional resources and a reputation/image of the consultant.*

Researching method

This paper's goal is to determine the most important criteria of consultants' selection in agro-complex of Serbia, in order to improve the process of consultants' selection and, at the same time, make the assumptions for adequate consulting services to the companies.

Empirical check of the set hypothesis was made by the procedure, by which achieve relevant conclusions for science – by research of field data, more concrete, by collecting adequate data on sample of 80 agrarian companies in Serbia, according to which are possible to make appropriate conclusions and generalizations, and the structure of the researched samples was striving to the structure of the total agro-complex in Serbia.

By the sample were comprised the companies which represent representative basic set population units, as: PKB Corporation - Padinska Skela, Soko Stark - Belgrade, Centroproizvod

- Surcin, PIK Becej, Karneks - Vrbas, Si&Si Group, AD Dragan Markovic - Obrenovac, etc.

The survey of the market research was done by three techniques: 1) telephone survey, 2) direct interview and 3) electronically.

In realization of the research task was used also a desk research of data, which refer to the criteria of consultants' selection, which was a valuable support in setting a research hypothesis. With combination of the mentioned research methods can get more reliable answer to key questions, which impose themselves within the factor analysis of consultants' selection in agro-complex of Serbia.

Researching results

The companies of agro-complex of Serbia from a sample were surveyed to determine the importance level of the following criteria, on a scale of 1 to 5 (1-the least important criterion for selecting the consultant, 5-the most important criterion for selecting the consultant):

Table 1. Evaluate your basic criteria while selecting a consultant

Criteria for selecting consultants	1	2	3	4	5
Professional integrity					
Professional qualification					
Cooperation and relationship with a consultant					
Project task draft					
Capability for doing business					
Potential for mobilizing additional resources					
Price of consulting services					
Image of a consultant					

Source: Research of authors, 2013

According to estimated importance of some criteria for selecting a consultant, their order, by importance hierarchy, would be:

Table 2. Hierarchy of the criteria importance in selecting the consultants in Serbian agro-complex

Criteria in selecting a consultant	Average grade
Professional qualification	4.8
Capability for doing business	4.6
Professional integrity	4.4
Image of a consultant	4.3
Cooperation and relation with a consultant	4.1
Potential for mobilizing additional resources	3.8
Project task draft	3.5
Price of consulting services	3.4

Source: Research of authors, 2013

The companies in agro-complex of Serbia agree in one: the issue of consulting services prices cannot be more important than the professional integrity and the professional qualification of a consultant. On a scale from 1 to 5 (1 – the least important criterion for selecting a consultant; 5 – the most important criterion for selecting a consultant), the price of a consulting service has the lowest average grade (3.4), opposite to the professional qualification with the highest grade (4.8). The results of empirical research coincide with recommendations of some international consultants associations. For example, the International Federation of Consulting Engineers – FIDIC, recommends to the clients to select a consultant according to capabilities, not price. Of course, the empirical research results should not be interpreted in a way that the price of the consulting service is irrelevant, but it can be taken into consideration only in the second round of a consultant's selection, and only those who fulfil the criteria of the business qualification and integrity.

Professional integrity - The selection of a consultant can be a simple process, if it is about high-technological problem, which is easy to determine and if it is about the field in which are one or more experts, which should be engaged. However, the consulting projects in management differ, as a rule, from this situation. It is certain that more consulting organizations of different profile, different size and with different background, will be interested for participation in selection procedure. At the same time, there apply also professional organizations from other sectors, because they had expanded their activity and had started actively to be engaged in business consulting. Although is hard to define a final product of the consulting service and it is not secure in advance, uncertainty can be diminished, and chances for getting a satisfactory product can increase in a way to select:

- Professional organization, well known by providing a first-class service,
- Individuals employed in that organization, which own acceptable technical expertise, with which can cooperate and which can be trusted that will achieve a mutual goal,
- Defined project task, which will, according to consultants and clients, will give the best results,
- Various logistic, organizational, financial and other conditions, which will facilitate these goals' achievement (Kubr, 1995).

The standard or universal criteria for selection of a consultant do not exist. It is important to point out that a client is the one who chooses a consultant, not vice versa, even if can impact to the potential clients by very sophisticated and direct marketing. There is also necessary to harmonize a volume of time and effort spent on searching the consultant and making the selection with complexity and importance of a business problem.

If there is a characteristic which distinguishes the consulting service and points out their difference in regard to other commodities and services, it is neither providing advices nor technical expertise, but the professional integrity, which is necessary condition for selection of a consultant. Numerous issues will be solved and problems avoid, if never makes a compromise about ethical standards and integrity. Certain information on professional behaviour of consulting organizations circulates in clients' circles, and, at the same time, this question which can be put to ex-clients (references). Some situations require an open

discussion, as a risk of conflict of interest, as by a consultant, as well as by a client. Other questions must not ask directly, since a consultant will reveal much while he talks about his performances, consulting profession, clients, competitiveness, etc. The consulting services play a certain role in economic and social life if ethical standards permeate all phases of the consulting process, as well as relations with clients. If this principle does not respect or sacrifice with a consultant's economic interests, the provided consulting service cannot be professional and independent. Consequentially, it is needed to know what the consulting organizations imply under professional behaviour. Necessary information can obtain from the consulting associations, because all associations have ethical codes and professional codes of conduct. Hereinafter will be considered the professional standards which use in consulting profession.

The initial condition for professional behaviour of a consultant and respect of a client organization's interest is providing true information on a consulting organization. It is necessary that the clients subject such information to a meticulous analysis and to ask for additional information, if they are not satisfied. The clients expect from a consultant a professional opinion, even if it differs from what they want to hear. Impartiality of a consultant means that he must not be engaged in internal policy of the company. At the same time, a consulting service should not be coloured by prejudices or emotions. General principle in consulting work is that the professional consultants must not give or receive any commission fee in order to get the project or to give presents related to the consulting project. If a consultant is engaged, it is understandable to expect that he will not announce any confidential information on a client, nor will use such information for gaining benefits. Without confidentiality, there will be neither consulting services, nor the consulting as a profession.

Generally, it is hard to make comparison of consulting services' products with other products, and it is possible that a consultant is the only person who knows how much effort and time is really needed for realization of the consulting project. Therefore, an issue of adequate compensation is, substantially, a question of professional integrity, i.e. ethics. Closely related to this professional standard has been also avoiding the conflict of interest, while the clients and their professional consultants have been complex organizations which have wide range of economic and social activities. Accordingly, there form the consulting associations, which define codes of conduct for their members.

The research of the consulting services' market in Serbia was determined that there is a significant demand for the consulting services regarding production standardization, in agro-complex (Mihailović, 2011). In accordance with the company's needs in the Serbian agro-complex, it seems suitable to formulate certain directives for selecting a consultant in this field, and especially for realization of quality management system.

In implementation of the quality management system, some companies in the agro-complex of Serbia decide to lean upon their own personnel, but some use services of external consultants. Selecting a consultant is important for the organization, because it should provide that the resulted quality management system to be able to fulfil all

aims, which the organization had planned in the best and effective way. Even when use a consultant's services for the quality management system, inclusion and devotion of top-management of the organization are key factors for realization of the quality management system. This international standard is meant for providing guidelines regarding the factors, which should consider when a consultant selects for the quality management system. It can be used by the organizations for the quality management system when selecting a consultant capable to fulfil their special needs, expectations and goals in realization of the quality management system. It also can be used by: a) consultants for the quality management system, as the guidelines for consulting on the quality management system, and b) consulting organizations, for selection of a consultant for the quality management system (Directives for selecting a consultant for the quality management system and using their services, 2005).

In accordance with the requirements of the professional integrity criteria, the companies in agro-complex should consider the following moral rules when select a consultant for the quality management system. A consultant should:

- Avoid or report any conflict of interest regarding a business which should be done,
- To save information confidentiality, got or taken from the company,
- To protect his independence from certification bodies/registration of the quality management system or the accreditation bodies,
- To protect impartiality when selecting the certification/registration body by the organization,
- To provide a real costs evaluation for consigned consulting services,
- Not to make unnecessary dependence from his services,
- Not to offer his services if he has no necessary qualification.

Professional qualification - Competitiveness sustainability on fast-changing market of the consulting services requires adequate education and continuous training of the consultants. Education for changes is an imperative for harmonization between society development and modern trends. Globalization and fast development of new technologies have caused new approach to education. Besides series of factors, of which depend development and economic progress of the society, three factors can mark as extremely important: permanent education; efficient introduction of new technologies; preservation of natural resources (Arsić, Savić, 2005).

The qualification criterion is, in most of the cases, a necessary condition for a consultant's selection. Only the consulting organizations, which show necessary qualification can be included in a shortlist and assessed according to other selection criteria. These criteria have the highest average grade in accordance to the surveyed companies' replies in the agro-complex of Serbia.

In order to be sure that the problem of a consultant's qualification has been adequately considered, the companies in agro-complex have to answer to some questions, which relate to specific qualification aspects (Kubr, 1995).

Firstly, there must evaluate the consulting organization's and an individual consultant's qualification. During the consulting organization selection purchases just its qualification, where personal qualification of a consultant cannot be equal to the consulting organization's qualification. In regard to it, it is logical to ask a question: "How the consulting organization manages, supports and controls its consultants in the field and how it ensures quality?"

In situation when it is about the consulting project of system development or methodology, which the consulting organization had previously implemented in other companies and for which it can offer some standardized model or its draft, a junior consultant is usually sufficiently qualified for doing business, of course, with support and supervision of more experienced consultant. On the other hand, if it is about the consulting project which implies evaluations and selection of alternatives in unprecedented situations, the consulting organization will have to determine a consultant with more professional experience, who will be relatively independent of the consulting organization management, but to whom will be available the organization's resources, when needed.

The companies in agro-complex of Serbia have to consider if there is necessary for the concrete consulting project that a consultant knows in detail a branch in which a client is, i.e. in which the company does business. Some consulting organizations have sectored specialized for: industry, agriculture, construction, insurance etc. At some, there is present, so called, functional specialization for marketing, organization, finances, personnel, etc. A consultant, skilled for some branch, can have an advantage when it is about a wide range of the consulting projects, which refer to a business strategy, restructuring, business and marketing. This specific knowledge is less important for managing personnel and finances, if a consultant is willing to learn fast on sector's characteristics and its differences in regard to other sectors in which he was engaged.

Of crucial importance is to examine knowing country and culture of a client, if a consulting project requires engagement of a consultant from abroad. The consultants are aware of a role and significance of environment for professional business performs and they are very sensitive to economic, political, social, cultural and other factors. In situation when a consultant starts a project in a country new for him, it is unrealistic to expect that he knows local conditions. Often happens that the consulting organizations follow the companies and the banks in business internationalization. It is understandable, since the partners, i.e. the foremost and the most competent consultants, are carriers of the most actions in multi-national and national organizations. Coming to new countries requires additional research, analyses and the consultants' preparations. However, if there is needed an advice from a highly-competent consultant for exceptionally specialized field, it is counterproductive to require in depth acquaintance with a client's country and culture.

The most of the consulting projects today have impact to, so called, „hard" and „soft" skills of a consultant. Hard skills imply a consultant's capability to understand and use in his work procedures, systems and methods which can be formally structured, described and quantified and which can be easily carried over to men of adequate knowledge, acquired by education. These skills are necessary in every field of consulting, but the most needed in

management and financial analysis, managing processes in production and services sectors, information systems and logistics. Soft skills refer to values, attitudes, emotions, relations and forms of human behaviour. These skills are necessary for understanding and influence to interpersonal relationships in the company, motivating the employees and managing the changes which have an impact to interests and emotions of employees. Accordingly, when selecting the consulting organization, it is important to focus to a relative value of hard and soft skills for realization of a specific consulting project. That is to say, a consultant can be expert in his field, but at the same time non-empathic and incapable to cooperate with people. Even so, a modern consulting, as a profession, has significantly developed in terms of balancing hard and soft skills, all in order to adjust business offer to the specific needs of the companies.

Societies with developed agriculture and efficient institutions have timely noticed the importance of knowledge, as a significance factor of agricultural production modernization and until now have relatively successfully enabled their transfer to the final users (Petrović, Čikić, 2005). Of course, the transfer of knowledge depends on a type of a consulting project. Some projects require high level of creativity and innovation, while some of them represent rather routine activity. Also, the important question is whether a consultant did earlier a similar project for some other company, although this fact should not be a reason for a consultant›s selection. If there is needed an innovative solution, there becomes prominent a consultant›s ability to judge creatively, not conventionally, to apply the research methods and models of IT and, accordingly, to generate new business ideas.

Taking into consideration that, in the Serbian agro-complex, there is a great demand for the consulting services in the field of introduction and implementation of standards in production and quality management, there will consider needed professional qualification of the consulting organization for this type of the consulting project. Factors of its professional qualification represent more developed and partly modified form of previously mentioned determinants of a consultant's qualification. When a consultant selects for the quality management system, the organization should value if a consultant has the qualification, suitable for size and content of consulting services he ought to provide. The qualification has been defined in ISO 9000 as the shown ability for applying knowledge and skills. As such it encircles: personal characteristics; education, knowledge and skills; knowledge and skills specific for the organization; working experience; improvement of qualification (Directives for selecting consultants for the quality management system and using their services, 2005).

Price of a consulting service - The companies in the agro-complex of Serbia agrees in one: the issue of consulting services' prices cannot be more important than the professional integrity and the professional qualification of a consultant. A consultant, as a rule, forms a price and collects a service in accordance with the usual practice in profession, where a method of collection of the consulting services negotiates before the business starts. If the price deviates (lower or higher) from the usual market price, then it is necessary to inform a client with the reasons of deviation.

The analysis of the required prices often opens a question of the project task type and personnel needed for its realization, so it should also be considered and specified at the very beginning. In that way, at the beginning will eliminate undesirable occurrences, which can seriously disturb the established good relations between a consultant and a client, and the smallest misunderstandings can disturb realization of the agreed job.

During the analysis of a consultant's offer, before it accepts it, management of a company-client pays special attention to if it is correct, testing primarily if it contains some unnecessary, and therefore, unfavourable items:

- Consultant suggested an expensive approach (e.g. too broad data collection, used more samples than necessary, elaboration of too many alternatives, purchase of expensive patent systems or equipment – *hardware*, etc.),
- project proposal anticipates the engagement of highly-educated and high-priced experts (a larger number of senior consultants) than necessary in that case,
- Consultants suggest their people for activities a client can do by himself or with little training and directions (Kubr, 1995).

Of course, if the offer contains such elements, it refuses smoothly, or, by negotiations, comes to optimal solutions, which will make mutual satisfaction, because only in such an atmosphere, the cooperation can be successful. For successful realization of a consulting task is very important to make an optimal team selection. The consulting task complexity level dictates a number and a structure of a team. As a rule, simpler jobs, concerning one or two functional fields, assign to one or several executive (field) consultants-experts for the specific fields (Blečić, 2005). To a leading consultant assigns the supervision of the executive consultants and he can be responsible for several consulting projects simultaneously.

That is to say, a leading consultant must not be permanently present in a company-client, but from time to time he visits the executive consultants, monitors the consulting task's progress and helps them with suggestions. In situations when it is about a complex consulting project, there makes a different selection of a consulting team. A role of a project manager has a consultant-analyst, who had done a report on company business analysis and he was the most deserving for a project negotiation. Since he has spent the most of time in a company-client, he is the best familiar with the situation, management of a client trust him the most. On the final price of the consulting service significantly affect a planned profit level of the consulting organization and to this purpose use several important parameters (Kubr, 1976). When planning a profit, the consulting organizations use a *profit-income* ratio. The ratio between 0.1 and 0.2 considers normal, but it depends on great number of factors. Real size of a profit which the consulting organization can realize, before tax, depends on taxation level and need to allocate funds for investments. If the consulting organization is in development process, which it has to finance with own funds, there can be needed a higher profit due to re-investing in business.

On the occasion of budgeting and planning the consulting organization work, there are more ways to realize higher profits. The management has to consider which method will adopt, depending on the market, possibilities for recruiting new consultants and abilities to improve an internal organization and activities planning.

Thereby should have in mind that all services that provide do not make profit. For example, certain number of working consultants and one senior consultant (consultant for special researches) can do the consulting project completely, while the rest of the senior consultants engage in preliminary researches and supervision functions.

Other criteria for a consultant's selection - Due to more complex image, selection of the consulting organization can observe in context of alternative actions for the changes project initiation (*Table 3*). Theoretical model, which explains this phenomenon, is, so called, Lundberg model, which represents a process of sequential selections series. The model has a form of series of questions for a manager – actor of organizational changes. The answers to the questions (by adequate order) lead to a decision on a method of initiating the organizational changes (Cvijanović, 2004).

The answers are, in fact, the rules which determine particular behaviours (selections) which lead to a next selection and so on, until defines the total path, i.e. a mode of initiating the organizational changes. The Lundberg model contains:

- ⇒ Set of alternative actions selection for the organizational changes initiation (Ys in table 3) where Ys =Y1, Y2, Y3 ,..., Y7;
- ⇒ Set of contingent questions or rules (Xi in table 4), where Xi = X1, X2, X3,..., X10;
- ⇒ Function of branching which converts conditions vectors in questions choice, i.e. Y=F(X).

The model has seven different selections of action on its way out (Ys in table 3), sort independently from their phenomenon frequency on model way out and which, according to Lundberg, cover the most of possible actions on initiating the organizational changes. The model contains ten contingent conditions (see Xi in table 4). Every Xi is, in fact, a question on which should answer with „yes" or „no", which means that Xi takes a value "O" and "1". The function of branching Y=F(X) is derived induction from experiences of successful managers – actors of changes.

Table 3. Alternative actions of the project changes initiation

Y1	Nothing to undertake
Y2	To solve (manager directly applies his solution to the appeared problem)
Y3	Problem passes to a higher level, due consideration that it could be solved only at the higher level, while it exceeds his authorities scope
Y4	Forming ad hoc committee (the committee is defined as a set of the manager's colleagues or subordinates, whose task is to suggest a solution to the manager, i.e. they are not authorized for implementation)
Y5	To obligate the Standing Committee to suggest possible solution to the manager (the Standing Committee exists from earlier and deals with problems and activities regarding the concrete problem, which solve the manager)
Y6	To form a working group – team (*task force* is defined as a group colleagues responsible, by the manager, for the solution suggestion, but also their implementation)
Y7	To make a contact with consultants (a consultant is a man outside the organization who is agreed to „supply" the manager with recommendations)

Source: Lundberg, 1990;

The Lundberg model is interesting for conditions and opportunities in Serbian agro-complex. The total role of a manager in our companies gets its significance, even the part of his role oriented toward the organizational changes, as a response to the problems occurred in the company and its business environment. The Lundberg model has been extremely focused on selection conducted by a manager and to a practice in which the incurred business problem has immersed.

Table 4. Xi: Contingent conditions in form of questions

X1	Is it necessary to initiate the project changes (X1 represents a manager's opinion whether a discrepancy will disappear if it is ignored)
X2	Does a manager know technically feasible solution or a project (design), X2 does not include managerial evaluation of the project/solution acceptability by his subordinates.
X3	Does a manager have time to solve or project the discrepancy solutions?
X4	Is a manager authorized to solve or to project the discrepancy solution? (X4 refers to a manager capable to determine, and not refers to a manager's ability to choose technically possible solution – project)
X5	Is the discrepancy repeats (X5 asks a manager is it possible the discrepancy occurs again or was noticed earlier)
X6	Will a manager's solution/project be accepted or there should negotiate on acceptance? (Manager's negotiation ability depends on his capability to identify men who will be affected by the project changes, as well as of his relative power among them)
X7	Can a manager carry out the discrepancy to his superior? (X7 depends on manager's assessment of his will and attention to carry out the problem to his superior one and the superior's will to accept it)
X8	Is there appropriate Standing Committee and is there enough time to respond? (X8 depends on a manager's confidence in the Standing Committee's competence)
X9	Is it possible to contract a consultant? (The possibility depends on a consultant's availability, as well as of the resources for compensation of a consultant's effort)
X10	Is there a serious time limit or a dead end? (X10 requires a dictate of the solution/project solution, if a manager believes that there is no use of further discussion!)

Source: Lundberg, 1990;

Our managers haven't got used to think individually on the changes projects. For example, the organizational changes projects were common and mutual problem or a higher instance problem. It would be useful that the managers in companies in agro-complex study the Lundberg model, to use it to test their thought process of selection and to use it simulative, taking care on necessary time and needed financial resources. The Lundberg model had found a quite acceptable balance between standardization of selection procedure, on one hand, and a specific practical situation, on the other hand (Cvijanović, 2004). Completely situational specific models, which base on local theories, were not accepted by the organizational changes managers-actors. The Lundberg model is usable on every hierarchical level and is opened for personal improving and extensions, which a manager-successful practitioner finds necessary. Consequentially, size of a company is not an obstacle to this model implementation; although in big companies have more possibilities for their successful application. If previous selection

model shows that there is necessary to use the consulting services, than can move to in depth analysis of criteria of professional integrity, professional qualification and the consulting services' prices. Except them, in a phase of valuation and consultant selection should involve few more criteria. According to advices of the consultant and research *Kubr Milan*, there is necessary to perceive also: previous experience with a consultant, forming the project task, capability for execution of a task, potential for mobilizing additional resources and a consultant's image (Kubr, 1995).

The conducted research has led to redefining of a starting hypothesis, first of all, to order correction of some criteria for consultants' selection by relevance (Mihailović, 2011). In accordance to it, there could conclude the following:

Decisive criteria for selection of a consultant in agro-complex of Serbia, by hierarchical order, are: professional qualification, capability to do business, professional integrity, image of a consultant, cooperation and relation with a consultant, potential for mobilizing additional resources, draft of a project task and a price of consulting services.

If starts from a theoretical abstraction that a company should select a consultant only according to one criterion, then, probably, previous experience with a consultant would be the safest. The relationship with a consultant is interpersonal relationship, not between organizations. However, there is no warranty that the same productive relation will develop between other people who will work at the project from the consulting organization and the client's organization. A key element of this relationship is trust. That is to say, a client expects that he will not be cheated by a consultant and that will not abuse his ignorance, absence, difficulties and lack of time for control. The consulting researchers mostly agree that it is not enough to select a consultant who is generally qualified (Kubr, 1995). Expertise of the consulting organization and an individual consultant must reflect in their approach to a project task. Analysis of a consultant's approach to a project task will reveal if a consultant makes efforts to understand completely a client's specific problem or to suggest application of one of the standard packages of his consulting organization. Evaluation of a project task can be done according to discussion with a consultant regarding a business problem and methods of their resolution, as well as by a formal proposal of a project task, submitted by a consultant. The consulting organization has to be capable to fulfil the promises. The capability to do business implies that professional staff be available at the right time, where logistics, support and supervision are also important. There happens that some consulting organizations compete for businesses they are not able to do independently. In such conditions, the companies can easily detect it by consideration of a project task proposal, by putting direct questions and informing on a consulting organization. The potential of mobilizing the additional resources is important criterion, too. Complex consulting projects require that, sometimes during their realization, goes beyond the project. The companies-clients have interest to know whether they will have to search for the additional resources for specialist advices in the field of market, engineering, law, etc. Finally, the easiest way in selecting a consultant is that a company addresses to a consulting organization with a good reputation, i.e. an image. It is a logical move for many inexperienced users of consulting services, which try to avoid risky situations.

Conclusion

The companies in agro-complex of Serbia agree in one: the issue of consulting services' prices cannot be more important than the professional integrity and the professional qualification of a consultant.

The empirical research results coincide with recommendations of some international consultants associations, which recommend to the clients to make a selection of a consultant according to his capabilities, not according to price. Consequentially, the research results should not be interpreted as the consulting service price is an irrelevant criterion for selection, but it can be considered just in the second round of the consultant's selection and exactly of those which satisfy the professional integrity and professional qualification criteria.

Some projects require a great creativity level and innovations, while some of them represent rather routine activity. Also, the important question is if the consultant has been involved earlier in a similar project for some other company, although this fact must not be a reason for choosing the consultant. If there is necessary an innovative solution, there becomes prominent an ability of a consultant to judge creatively, not conventionally, to apply research methods and models of IT and, consequently, generates new business ideas.

It is important to emphasize that a client selects a consultant, not reversely; although on potential clients can be affected by very sophisticated and direct marketing. If a manager is serious in attention to engage the consulting organization, he primarily wants to be sure that his decision will be completely justified and supported within the company, that there will be selected the adequate consulting organization and that the company will have clearly defined positive effects from the consulting project.

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FAKTORI IZBORA KONSULTANATA U AGROKOMPLEKSU SRBIJE

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Apstrakt

Izboru konsultanta treba posvetiti posebnu pažnju, tim pre što u Srbiji, dakle i u njenom agrokompleksu, informisanost o kriterijima za izbor konsultantskih usluga nije na naročito visokom nivou. U samom istraživanju pošlo se od pretpostavke zasnovane na skromnom iskustvu i obaveštenosti stečene praćenjem stručne literature, ali sa dozom skepse, pa je pitanje bitnosti pojedinih kriterijuma izbora konsultanta postavljeno u obliku hipoteze, kako bi se utvrdilo pravo stanje u ovoj oblasti. Determinisanje osnovnih faktora izbora konsultanata u Srbiji nameće se po prirodnom pravu. Proces izbora konsultanta počinje definisanjem zahteva konsultantskog zadatka i kriterijuma uspešnosti zadatka. Ovim procesom se obično dolazi i do popisa referenci koje bi konsultant trebalo da ima.

***Ključne reči**: kriterijumi izbora konsultanta, konsultantske organizacije, sistem menadžmenta kvalitetom, agrokompleks.*

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OPPORTUNITIES FOR SUSTAINABLE DEVELOPMENT OF RURAL TOURISM IN THE MUNICIPALITY OF VRBAS

Milutin Mrkša[1], Tamara Gajić[2]

Summary

Rural tourism is the tourism development in rural areas. Under the rural tourism means all tourism activities that take place in rural areas that require travel services in the same places. Therefore in order to develop rural tourism is necessary to create an offer that includes the involvement of the local population, to preserve the environment in the tourist areas and enable economic gain. All of the above suggests that this approach can talk about sustainable development of rural tourism. The paper presents Vrbas municipality and potential drawbacks for the development of sustainable rural tourism and proposed concrete measures.

Key words: *Rural tourism, environment, sustainable development*.

JEL: *Q16, M24*

Introduction

At the beginning of the work it is necessary to look at the definition of sustainable development, rural development and rural tourism, as well as the basic principles of design and context of the proposed measures in further writing work.

The concept of sustainable development has become the guiding principle of development policies in a growing number of organizations, from local to national levels. The roots of today's forms of sustainable development dating back to the values of people that are non-renewable natural resources, there is a lot of negative human impacts on the environment and the need to define and adopt a development direction that will ensure their principles or combine three elements: economic, social and environmental and to the mutual relations of these elements, with the obligatory respect and combination, be progressive, but not right now and the future.

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A conceptual model of sustainable development was seen as a consensus of human, social, economic, technological, cultural development and conservation, rehabilitation and improvement of the environment and protection of the natural heritage and the initial native ecosystems. Balancing all sides of human life should ensure human well-being (Cobb, 1995). It is this definition of sustainable development can be the basis for defining sustainable rural development. The current rural development policy that is applied in the European Union pursued our state, defined in Agenda 2000 and is based on the principle of multi-functionality of agriculture, multi-sectors and integrated approach to the rural economy, diversification of activities, creating new sources of income in rural areas, employment opportunities, protection of rural resources, decentralization, partnership at local and regional level and transparency in creating and managing development programs (Stojanović, Manić, 2009). The World Tourism Organization (WTO) has characterized the response of tourism as a peak in the management of all resources in such a way that economic, social and esthetic needs can be fulfilled while maintaining cultural integrity, essential ecological processes and biological diversity and the maintenance systems of the living world is a new and higher quality set of rules and principles in the development of tourism (Radulović et al., 1997).

Rural tourism is bound and takes place in rural areas, in this case in the rural areas of the municipality of Vrbas. However, rural tourism is not only a holiday in the country, as it basically looks, but a wide range of activities in rural areas. Mainly as tourist activities related to natural and anthropogenic conditions, as in the case of rural areas over a ten tourist activities, eco, sport and recreation, culture, health, sailing, hunting, fishing, educational, religious, etc.

With regard to the specific topic of which is linked to the rural parts of the Municipalities of Vrbas and sustainable development of rural tourism in the same, it is necessary to pay special attention to integral parts of sustainability. The economic part is reflected in the involvement of the local population in the creation of rural tourism product through the provision of accommodation services, marketing of agricultural products, marketing of food and non food products of domestic industries and the creation of conditions for additional income. The social component is reflected in improving the quality of life in rural areas through the rehabilitation and construction of infrastructure, and raising the level of awareness and knowledge, creating an environment for young people to stay in rural areas and strengthen rural communities. Protection of the environment as the third part of sustainability is to be constantly present in the panes and development activities as a factor that should not be compromised and neglected, that is, to define the time and respect ecological capacity and the impact on the environment.

General characteristics of the municipality of Vrbas

Vrbas is crossing the central and southern Backa along the route of the Great Backa canal, which forms the backbone of a hydro system Danube-Tisa-Danube Canal. While as the centre of the Vrbas municipality has a central position in relation to the back, other settlements are more inclined towards its southern part. In addition to the Vrbas, which is also the center of the municipality, the municipality of Vrbas consists of the

following settlements: Bačko Dobro Polje, Zmajevo, Kucura, Ravno Selo and Savino Selo (Miljković et al., 1998).

Vrbas municipality covers an area of two geomorphic units: the loess plateau and loess terrace. These units, although relief is clearly defined as distinct morphological categories have many common features. Height difference between them is not the same everywhere. Most notably in the border area to the tower, where the loess plateau dominating the loess terrace within height of 17 m. Southeast of the Vrbas River that border is less pronounced because the transition from one form to another in the form of gentle slopes. The total dissection of the relief is 24m and ranges from 80 m to 104 m above sea level. Meadow calcareous chernozem soil is most common in the area of the municipality of Vrbas (Miljković et al., 1998). This is the most common types of soil on loess terrace. The average thickness of the humus horizon of this soil type is 65-70 cm. Meadow calcareous black soil has good structure, water-physical and chemical properties, in particular, is rich in nitrogen, phosphorus and potassium, and an agricultural land of high productive value. Chernozem on loess plateau, meadow black soil is relatively deep humus horizon, very favourable and stable structure loamy texture, is well supplied with plant nutrients in available form, water is good physical and thermal properties. Good physical and chemical properties of the deeper layers of the basic characteristics of production for which it is classified as a land of high productive capacity. Carbonate chernozem - extends also to the loess terrace and the loess plateau. On the loess terrace carbonate chernozem is present in several locations, while the loess plateaus of southern parts of the project. The average thickness of the humus horizon is 40-70 cm. Colour is brown calcareous chernozem-brown on the loess plateau, while the loess terrace brownish-black. Solonchak a type of salty soil. It is a type of brine created during salinization. In the municipality there is a small territory solonchak. This salty soil can be successfully unsalted lowering of groundwater levels (Mrkša, Milanović, 2012).

Clime has no pronounced specificity compared to other parts of Vojvodina, and has features continental steppe climate. Annual average air temperature is around 11°C and annual average rainfall is 560 mm. The value of insolation is about 2003 h per year, while the cloudiness is about 60% per year (Popović et al., 2011). For much of the territory is most frequent north-westerly wind in the summer and spring, while the intensity somewhat weaker southeast wind-wind, which is most frequent in autumn and winter.

The most important hydro graphic facility in the territory of the Grand Backa Canal, but no less important and other channels hydro system Danube-Tisa-Danube Canal. Digging of the canal has greatly contributed to the creation of the Vrbas as a strong industrial centre, because the channel was designed primarily for transportation. However, the major waterway channel has today become a major environmental problem Vrbas, because he used the same industry, and still used for wastewater discharge. In addition to DTD hydro system, through the municipality, river flows Jegricka, which is partly protected as a nature park category III. The importance of groundwater, except for

water, is reflected in the existence of three thermal spring waters that are both energy and health resort potential (Mrkša, Gajić, 2013).

Flora and fauna are directly related to the geomorphologic, soil, climate, hydrological and anthropogenic factors, so that in the community, depending on the type of land, more land - drier and lower, wetter (marsh), and develop adequate wildlife. Forests to a significant extent do not exist, except for some trees near the banks of the canal Jegricka, mostly poplar, black locust and pine. With the roads are chaparral and shrub, while at the site Carnok, a significant number of protected species. The most numerous faunistic groups are over 100 bird species, then fish with more than 20 species, while in the hunting and the domains may encounter deer, rabbit, pheasant, quail and others.

Catering facilities

Catering in the Vrbas municipality is most prevalent in Vrbas, where there is more than 60% of restaurants. Most of the buildings are privately owned. The offer includes all types of extensions: snack bars, cafes, coffee shops, pizzerias, pastry and dairy restaurants.

Table 1. Number of seats in restaurants and ownership structure

Place	Object	Number of seats		Ownership
		Closed part	Terrace / Garden	
Kucura	Backi rucak	66	/	Privately
Backo Dobro Polje	Durmitor	250	100	Privately
Backo Dobro Polje	Braća Mandic	80	50	Privately
Zmajevo	Obilic	80	/	National
Zmajevo	Jezero	72	16	Privately

Source: According authors research.

Brothers Madnic Motel is located on the E-75, in the direction of Novi Sad. It was built in 1994. years, with 6 single rooms, 24 double rooms and 4 suites. Each room has a bathroom, air conditioning, TV and internet. The motel has a restaurant within which it operates banquet hall, a breakfast room, a gallery with a coffee bar and a terrace. The complex includes a gas station and fast food restaurant with a cocktail bar. Ethno house Misljenka in Zmejevo has four double bungalows and a small restaurant. Zodiac Motel in Savino Selo is closed. Check-In addition to the facility, which is not in an enviable situation (needs renovation) complex, has 10ha of land that could be used to build additional facilities. The total volume of tourist traffic and capacity utilization in the municipality is very small compared to the real possibilities of tourism. It should be noted that the scope and level of use of accommodation facilities is only an indicator, not an indicator of tourist spending a certain location or tourist places. What is the tourist offer of a higher quality and more diverse and overall travel spending is comparatively higher.

Table 2. Tourist arrivals and overnight stays in the municipality of Vrbas, in the period 2005-2010.

Year	Tourists			Tourist nights		
	T	D	F	T	D	F
2005	5.086	4.188	898	14.593	12.518	2.075
2006	9.304	5.346	3.958	22.055	17.787	4.268
2007	10.186	4.445	5.741	19.354	12.457	6.897
2008	12.415	7.900	4.515	17.635	12.054	5.581
2009	7.520	5.555	1.665	11.226	8.770	2.456
2010	8.543	6740	1.803	13.960	10.938	3.022

Source: Municipalities in Serbia, publications for selected years (2006-2011), Statistical Office of the Republic of Serbia, Belgrade, Serbia.

Possible forms of tourism activities in rural areas of the municipality

In rural areas of the municipality of Vrbas are potentials and capacities for the development of the following tourism activities: ecotourism, cultural tourism, hunting and fishing, sports and recreation. These four forms of tourism activities were selected because of their development of a realistic opportunity for the evaluations of which do not need special investments. It may be noted that their development conditions for the development of tourism and other activities that require significant financial investment. Development of these tourism activities animate the local population to determine the provision of housing in rural households, to start by having only one room and rearrange issued, depending on the volume of guests later expanded capacity.

Ecotourism is a form of tourism upsurge which is projected to soon be, if not, the dominant trend of tourism development at a global level. The planning of ecotourism must answer the questions: how to manage visitors, how to organize and edit eco destinations to preserve it and to tourists could experience feelings of closeness with nature and, at times, be integrated into the local community, to build tourist accommodation on the model criteria "ecolodge" (protection of natural and cultural values, minimal environmental impact and integration into the landscape, low water consumption, alternative energy sources and careful waste management, etc.) to existing and new hotels and make a commitment to doing business by respecting the principles of sustainability and environmental protection.

In the municipality of Vrbas should make a serious attempt (effort) to develop and implement a model of eco-tourism. As undoubtedly the main eco destinations plan spacious and uninhabited or sparsely populated parts of the region and protected areas. The main contents of their eco-visitors would be: a discrete network of marked walking trail excursion, with possible editing of individual sections of cycling; horse, accompanied by a local guide, or ride a horse-drawn carriage or other; educational and scientific activities, bird watching; picking mushrooms, medicinal plants and harvesting with a guide or host; observation or participation in the processing of milk and other traditional works in the authentic rural households; observation or

participation in traditional arts, games and contests; lodging and stay in tents or in huts that are earmarked for the purpose built in traditional / authentic architectural style of the building. Potential eco destinations would be: Nature Park "Jegricka"; Natural Monument "Carnok"; Provalije; Zmajevacka lakes; Kosancic; Windmill in Ravno Selo; Motel Zodiac in Savino Selo; Unpolluted coast river canal.

Cultural tourism - the cultural tourism resources include various types of cultural heritage. The different classifications are usually distinguished: cultural and historical monuments, architectural objects, ethnographic complexes, monastery complexes and churches, museums and monuments, exhibitions, galleries and fairs, cultural forums, folk festivals and various cultural attractions. Cultural tourism attracts many tourists. According to studies of the European Commission 20% of tourist arrivals in Europe corresponds to the cultural motivations of visitors, while 60% of European tourists are actively engaged in cultural discoveries and cultural tourism. Cultural tourism directly helps establish mutual respect among peoples through studying the history, preservation of historical, cultural and archaeological monuments.

The most significant cultural and historical monuments in the rural parts of the Vrbas municipality are Orthodox Church in the Zmajevo, the Orthodox Church in Ravno Selo, which houses two valuable religious books "Octoechos" Bozidar Vukovic and "Osmoglasnik" Jeronim Zagurović, Greek Catholic church in Kucura, founded in 1765th, the Roman Catholic Church in Kucura, built je1859. Year, Villa in Savino Selo was built in the late nineteenth century Hungarian Art Nouveau style. It was built as a family home then landowners who had a mill at the same place. Today, the villa is a separate clinic medical center. The building was restored a few years ago and is in excellent condition. Windmill in Ravno Selo owned by painter Vladimir Stepanov, built on the place of illegal dumping. Interior of the windmill has been converted into studio (ground floor) above the studio showroom that reflects the traditional life of the region, filled with hundreds of items (old furniture, rugs, miscellaneous utensils, old tools, etc.). The area around the windmill is filled with about a hundred species of conifers, more than 300 kinds of seasonal and multi-annual flowers and deciduous trees, about 80 species of bushy trees and ornamental shrubs. In the garden there is a small lake with cascades, fountains and a wooden bridge.

The most important tourist events that take place in urban areas of the municipality of Vrbas are Kostelnik an inter municipal fall musical and poetic manifestation meeting choirs organized by KDP "Karpati" and KC Vrbas, in November; Marigold Festival children's poets held in Savino Selo since 1989. The international character and excels in working with gifted children and writers, the festival is in its publishing activities established a special edition of the first book most talented poet or poetess; Art Colony "Triangl" in Savino Selo brings together many powerful and talented artists, in the traditional May, who three-day interval create their images, mostly of landscapes, still lives, associative and figuratively, author and aesthetically liberated; Kucura harvest an event at which the act Ruthenian and Ukrainian cultural clubs, and several companies of other ethnic communities Vojvodina, whose aim is to preserve and foster the folk

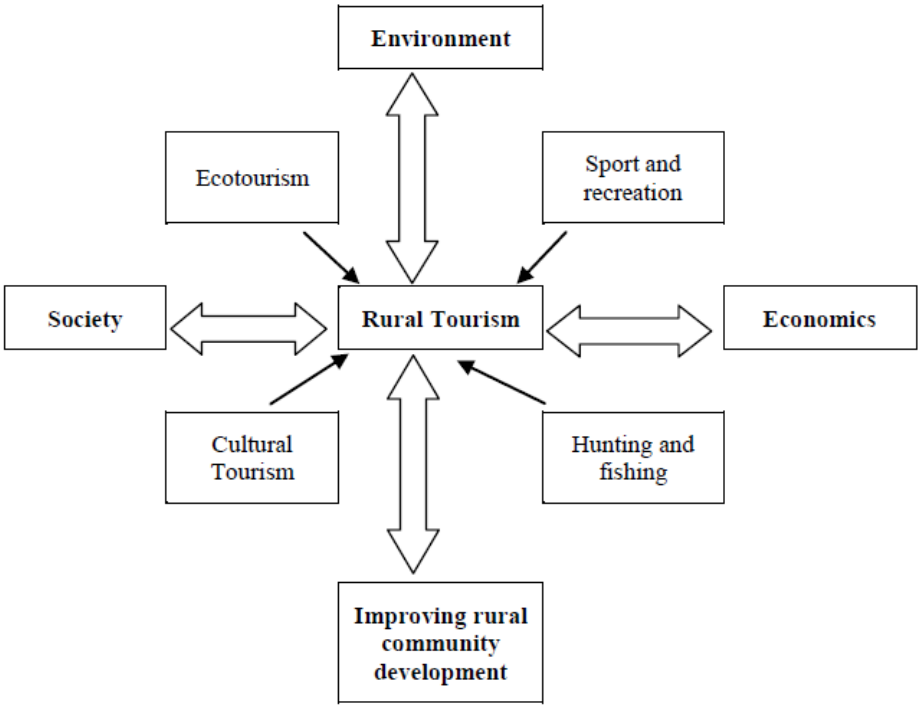
heritage Russians and other ethnic groups; tamburitza music festival held in the Dragon in honor of Sava Vukosavljev one of the most prominent figures in the music scene in Vojvodina during the second half of the last century; "Fijakerijada" in Ravno Selo is a traditional equestrian events with a revue and competitive, the competitive part is demonstrated through the republican priority in teams, where the particular assess the look and grace of horses, horse-drawn carts and coachmen, held in August, and the organizer of the Jockey Club "Mustang" from the Ravno Selo.

Specifics of hunting and fishing apart from other forms of tourism trends are reflected in the motif and the extreme complementarily of these activities. The motive of hunting tourism is hunting wildlife whereas fishing tourism is catch fish. What is important to note that in addition to evaluation of wildlife as a natural resource, come up to their sales, as opposed to other types of tourist movement in which the natural resources of a framework for a tourist developments and to meet tourist needs. Hunting and fishing tourism activity is organized by the strict compliance with hunting and fishing and the professional, ethical and legal standards relating to the manner of enforcement of hunting and fishing. Hunting and fishing activities are clearly and precisely defined the duration of the hunting and fishing seasons and species of game or fish to which they relate. It is extremely important that standards are fully respected otherwise it could be a complete extinction of certain species of wild animals and fish (Mrksa, 2009).

Hunting Association "Vrbas" managing the hunting ground "Koviljak" the total area of 37.566 ha, of which hunting area is 33,835 ha. The association is composed of a hunting society "Pheasant" from Vrbas, "Hawk" from Kucura, "Pheasant" in Savino Selo, "Rabbit" from the Ravno Selo, "Deer" from the Zmajevo and the "Partridge" from Backa Dobro Polje with about 570 members. At work the next hunting facilities: 5 stable waiting 73 for feeding deer, 191 for feeding pheasants and partridges, 97 soloists, 21 watering hole, two shelters for pheasants. Constantly cultivated species of wildlife are deer, rabbit, pheasant and partridge Poland. Professional service has the gamekeeper employed full-time and 36 volunteer rangers. For hunting the most important is summer hunting quail, doves and turtledoves, and winter hunting ducks hang out-and-White-fronted geese.

The special significance of hunting lies in the fact that modern hunting is conceived and constituted so that it is in the function of sustainable development. It means that hunting which represents a complex activity of managing wildlife populations for their protection, breeding (artificial production, population, health care, nutrition), hunting and rational use, as well as maintaining and improving the habitat conditions in hunting grounds, not only provides the optimum reproducibility of the existing wildlife populations according to the potentials of their habitats (biological and economic capacity of a hunting ground), but also aims to prevent and repair any damage wildlife may cause in a given ecosystem or biotope (Prentovic et al., 2012).

Graph 1. Model for Sustainable Rural Tourism



Source: Authors point of view.

The main task of the association is the preservation of fishing delegated control of surface waters and fish stocks. This is accomplished through the action of maintenance, stocking and storage of poachers and illegal means of fishing. Often, in accordance with the regulations and hunting seasons are organized competitions and sports fishing capital examples. In the municipality of Vrbas function following associations: "goldfish" from Vrbas, "Perch" from Kucura, "Jegricka" from Zmajevo and "carp" in Savino Selo. In addition to regular activities that include situation of sport fishing grounds, fish stocks, conservation and management of the same, organized the championship, league competitions, schools, fishing, etc. Important fishing events include "Stukijada" in Savino Selo, the Dragon's Children's camp - the school of carp fishing, "Carp Cup" on Zmajevačka Lakes and others.

Of sport and recreation touristic activities - the relationship between sport and tourism today is emerging as a mutually beneficial process, because it created an interactive relationship, and sport is shown as a separate part of the tourism industry, and more and more opportunities to enrich the tourist offer of the sport and support the development of sport through tourism. According to Plavsa (2007) sports activity is not the same for everyone, nor is her experience the same even for the same person at different ages, the specific importance of sport and tourism is the effect that leave of different people, or is person at different times of life. This type of tourism in recent times is growing

in popularity and is of interest to a very different target groups, from children to the very elderly. The basis for mass organization and the dominance of this type of tourism in the destination represent natural conditions (suitable relief, climate, well-preserved environment, etc.) and a well-developed general infrastructure, facilities for adequate housing and facilities for sports and recreation. Population, it can be divided into two parts, one of which involves providing athletes with the desire to have as many elite athletes from a variety of disciplines and others, which involves the creation of content for the widest and most varied forms of recreation that is now common practice of people regardless of age, constitution, and even health.

In each of the settlements are an outdoor football field, tennis courts, football and handball. These two sports have the highest traditions of the region. The Flat Village's 2012th year built mini pitch, while that same court has existed for several years in the sport complex "Obilic" in Zmajevo, which still includes open fields for soccer, and indoor facility is a restaurant and a table tennis room. All outdoor handball courts and basketball courts are located within the primary school until the completion of the school room in all localities (except Kucura that already has a school sports hall) is expected in the 2013th year. In addition to these fields and facilities under construction, sports and leisure activities are possible and unpolluted rivers, of all the river channels DTD hydro system and Jegricka. In addition to bathing activities on the water as possible and boating and kayaking, while banks can arrange for beach volleyball, mini football, table tennis and others.

Tourism and Environment

In planning for the sustainable development of the environment as an integral part of sustainability is of great importance. The development of tourism in the context of sustainable rural development and need to be sustainable, which means that equal attention, should be paid to the relationship between tourism and the environment. Ecological capacity - the capacity or the capacity of the ecological environment is defined as "the ability of the environment to accept a certain amount of pollutants per unit of time and space so that no irreparable damage to the environment"[3]. In addition, it is necessary to quote the relevant terms and definitions relating to capacity, and that "the environment" - which is "a collection of natural and man-made resources whose complex interrelationships make the environment or the space and conditions for life" and "pollutants", that "the discharge of materials into the environment, affecting or may affect its natural composition, properties and integrity" (Mrksa, 2009).

International recommendations for policy and planning for sustainable tourism allocate 12 objectives related to economic viability, local prosperity, employment, social justice, meeting the needs of a lot of visitors, local management and organization, protection of cultural heritage, being of the community, the physical integrity of the landscape / space , biological diversity, wise use of resources and clean environment.

However, the successful implementation of sustainability implies the prior identification of indicators, which is a very large and complex task. Based on the experiences of other

3 *Zakon o zaštiti životne sredine*, Službeni glasnik Republike Srbije, br. 36/09.

countries, it requires time consuming research (2 to 3 years), as the number of indicators used so far is a few hundred, based on five main criteria for selection. As in Serbia, at the level of institutions and bodies responsible for tourism such a study has not been done, it is also the objective limitation that in the terms and conditions of the financial, tourism sustainability indicators identified and applied to the case of the municipality of Vrbas.

An important issue is to identify the limits of development of tourism. Model / concept of "carrier / border capacity" for a long time the subject of debate in the academic world and its application to tourism suffered strong and justified criticism. For these reasons, this concept has been modified and it is entered in the realistic / pragmatic approach to the assessment of the sustainability of tourism increasingly used model "limits of acceptable change".

For the municipality of Vrbas, it can be said that the changes (impact) that brings tourism development acceptable if: not degrade or violates the aesthetics of the landscape, especially those parts of the areas where development is planned ecotourism; does not damage natural habitats and of wild fauna and flora through measures defined laws on the protection of these resources and values, and their protection under international agreements to which our country has acceded; does not condition / generate excessive and improper use of natural resources, especially water, plant life, wildlife, fish, outside the legal framework and the framework determined and verified programs grounds; does not generate waste and garbage in places and manner obviously a problem esthetic and hygienic-sanitary nature; does not create further pollution of air, water and soil through standards set by law and other regulations. Planned forms of tourism, construction and renovation of facilities and other works related to the development of rural tourism, the development of transport and other infrastructure, looking at the strategic level, not exceeding indicating the following conditions /criteria.

Ecological capacity of the municipality are certainly beyond the scope and types of changes that can be expected due to the planned development of tourism and the development of, for now, is limited by environmental restrictions for market, economic and socio-demographic conditions. Tourist use of space leads to significant anthropo ecosystems and space, which is divided into harmless involving very small load, the maximum allowed, dangerous, critical and catastrophic. The harmless pressures on the landscape and the ecosystem are when the natural system of irreversible changes doesn't occur. The effect of such natural complex load leads to the second or third level of digression. Load Level II are considered low if the natural compound capable of withstanding heavy burden not losing reproductive power. Maximum allowed travel pressure causes the natural complex is in the third category digression. If natural complex transition from III to IV category, beyond the limit of endurance, the load is considered dangerous. Criticality corresponds to level IV digression. Disastrous burden resulting ecosystem or natural landscape in the V stage digression in which the damaged natural connections among the natural components. Different types of natural complexes have their own specific structure and characteristics of the internal link between morphological units systems react differently to external impacts and within it the load of tourists. Because load is a natural complex safe, natural complex of the second type can be dangerous or critical. Established norms allowable loads are basic sizes that can extrapolate to all other types of natural complexes and, depending on their ecological characteristics and the planned

areas for extended periods of rest (Ljesevic, 2003; Mrksa, 2009). According to the World Tourism Organization (WTO) has been proposed maximum load space tourists related to the different activities and recreational areas. Basic preventive measures for environmental protection and nature of adverse tourism activities and activities to determine the capacity of tourism activities and visits.

Final considerations

The main resources / resources for sustainable development of rural tourism in Vrbas are natural and human resources, while the main activities are agriculture and tourism. Combining and steady development and improvement of the above resources and activities can achieve the desired results. Based on the established natural and anthropogenic resources presented are the possible forms of tourism with the expected results and shortcomings. It should be emphasized infrastructure (transport, energy, water and telecommunications), functional potential and Disadvantages of settlements. To talk about sustainable tourism development should propose measures and activities specific steps to contribute to the proposed order.

Based on the above to work, in order to realize sustainable development of rural tourism can be drawn the following conclusions: The favourable geographical position and transportation populated municipality of Vrbas; Agriculture as a traditional occupation of the population in rural areas of the municipality (which also contains the largest area of arable land) is a strategic development of the municipality; Eat a well-preserved and protected natural and cultural heritage as its capacity allows the development of tourism activities; Water resources of the municipality, notably the unpolluted waterways and canals Jegricka are the basis for the construction of irrigation systems but also for recreational tourism activities; A multicultural population structure provides a good basis of diversity of experience of potential tourists, mainly because of traditional hospitality.; Lack of infrastructure, which could lead to the construction and improvement of medical services, education through the creation of new majors, cultural and sports facilities, create better living conditions in the rural areas of the municipality; Lack of strategic documents in the field of agriculture, tourism and rural development should be a stimulus to the documents in the following positive expectation prepare, adopt and implement.

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MOGUĆNOSTI ODRŽIVOG RAZVOJA RURALNOG TURIZMA U OPŠTINI VRBAS

Milutin Mrkša[4], Tamara Gajić[5]

Rezime

Ruralni turizma se vezuje za ruralna područja. Ruralni turizam podrazumeva sve turističke aktivnosti koje se odvijaju u ruralnim područjima ali i turističke usluge koje se pružaju u istima. Zbog toga je u cilju razvoja ruralnog turizma potrebno je uključivanje lokalnog stanovništva, očuvanje životne sredine u turističkim mestima i stvaranje uslova za ostvarivanje ekonomske dobiti. Sve navedenoi govori da je se ovakav pristup može okarakterisati kao održivi razvoj ruralnog turizma. U radu su na primeru pštine Vrbas predstavljeni potencijali i nedostaci za održivi razvoj ruralnog turizma, ali i predložene konkretne mere.

***Ključne reči**: Ruralni turizam, životna sredina, održivi razvoj.*

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CONSEQUENCES OF FISCAL DEFICIT AND PUBLIC DEBT IN FINANCING THE PUBLIC SECTOR

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Summary

The aim of this paper is to highlight the important issues of the budget deficit and public debt and their impact on economic growth. This paper considers the twin deficit hypothesis, which argues that there is a strong correlation between the current account deficit for an economy and government budget deficits. In the last ten years, Serbia is faced with a situation of simultaneous fiscal deficit and current account deficit. However, the growth of gross domestic product and the maturity of the debt obligation indicate that the debt burden increases, the weak development of the economy and the debt, and the power of the state and threatened to open debt crisis, the emergence of foreign insolvency. To explore the effects of budget deficits and public debt in macroeconomic relations and aggregates applied the methods of descriptive statistics, and used the official data of the relevant national and international institutions. The main results of the analysis indicate a crisis of public finances, which are accumulated for many years, with a growing budget deficit and the dominant external financing of the budget deficit.

Key words*: budget deficit, investment, public debt, spending, economic growth.*

JEL: *E62*, *H63*

Introduction

According to the conventional definition, fiscal deficit is the difference between total revenue and total expenditure of the state, created over a period of time, usually for one year. But, so defined fiscal deficit is not reliable measure and for the purposes of deficit analysis and its impact on other macroeconomic values necessary to accurately determine the contents of this term. This is so because the amount and significance of fiscal deficit

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changes depending on the scope of the state: the central government, consolidated central government, which apart from the central government includes and non-budgetary funds; the consolidated general government, which includes revenues and expenditures of local governments, authorities, public sector whole, which includes the balance of financial transactions of public companies, as well as fiscal transactions of the financial sector (privatization funds and / or development banks). Consequently, the most comprehensive measure of state impact on other sectors and the economy as a whole should include government deficits in its broadest scope. As is known, such a measure is rarely published so typically in the analysis is used deficit of the central, consolidated central or consolidated general government (Davina at al., 2002).

In addition to a measure of the deficit, which is based on the simple difference of income and expenditure, often for a specific purpose are calculated other indicators of deficit, for example, the primary deficit, the operating deficit, structural deficit, cyclically- corrected deficit, current account deficit of the state budget, and the like. For analytical purposes are commonly used: the conventional deficit, primary deficit and the cyclically-corrected deficit, in terms of inflation the real size of these amounts. Cyclically-corrected deficit is applied in the analysis of multipliers based on the traditional IS-LM model. The conventional deficit as partly endogenous, has no a multiplier effect, because it is the result of increased transfers to the unemployed (as opposed to the deficit, which is a result of growth in public investment), and as such is already incorporated in the multiplier (Tobin, 2001).

Since the state budget deficit is a residual size, it is clear that there are considerable difficulties in assessing its impact on the economy as a whole, as well as on some macroeconomic aggregates. This follows from the fact that does matter how the deficit is caused, whether as a: result of the tax cuts; a result of growth in government spending; and in particular from the fact that the impact of the deficit varies depending on which taxes and expenditures are matter of change. From the foregoing, it may be concluded that the impact of the deficit on the economy should be considered in the context of the specific fiscal policies and measures on which it rests.

One of the important conclusions from a number of empirically analyses is that there is a difference in the effects of permanent and temporary deficits. While, temporary deficits can have the stabilization effect, the impact of permanent deficit depends on the way of deficit financing: issuing money and/or borrowing. The public debt does not increase when the deficit is financed by issuing money, and has no effects on the change of level of indebtedness, unless the debt is denominated in local currency and when it is not indexed. This means that public debt is the result of permanent deficits that are financed by borrowing (at home or abroad). From the results shown follows that the deficit of the public debt level changes between the two years (if not financed by creating money) and their effects on the economy are consistent in cases of permanent fiscal deficit and debt financing.

The consequences of fiscal deficits and public debt

There are three theories about the effects of budget deficits and public debt: Keynesian, neoclassical and Rikardian School. Their common characteristic is that they mainly discuss the situation of deficit occurrence due to the reduction in tax revenue, and not due to an increase in government spending (although the Keynesian school in the original version sees the effects of the increase in public spending to changes in employment and output, and later the effects of a decrease in tax revenues). In general, differences in attitudes about the deficit and public debt are resulting from different choices of assumptions underlying the models of different schools (Tempelman, 2005).

Pursuant to the doctrine of classical economics, the deficit and public debt were a justifiable only in exceptional circumstances and for short-term needs of public spending, while their permanent existence justified only in the case of financing of productive capital projects whose rate of return higher than the rate of interest on borrowings. According to the belief of the classical economists, there is no significant difference between borrowing by state and borrowing by private individuals. Each type of debt is for the harmonizing flow of income and expenses over time.

The neoclassical school is based on the assumption that people have a limited lifetime and that generations overlap, and that in all periods there is a balance on the market. Budget deficits increase overall love spending by shifting taxes on the next generation. If economic resources are fully utilized, increased consumption necessarily implies a reduced savings. The situation in the capital market is changing, and the interest rate must rise as the market would come back into balance. Permanent deficits in this way "crowd out" private accumulation of capital, which has devastating consequences for economic growth (Bernheim, 1989).

The Keynesian school proceeds chronologically to neoclassical, and is based on the premise that timely deficits have favourable effects on welfare. However, there are situations in which stimulation of aggregate demand caused by a deficit has adverse effects. Such example is the situation of full employment and a fixed supply of money, when increased money demand leads to rising of interest rates and falling investment. Accordingly, set out, Keynesian school leaves the possibility that the deficit has positive or negative effects, depending on the state of the economy. This means that Keynesian theory is unable to provide universal recommendations to politicians, and that they themselves should identify what state the economy is, in order to comply with this could take appropriate measures (Radcliffe, 2009).

Rikardian School assumes that successive generations are connected with selfless and voluntary transfer of resources. This means that the consumption is function of resource of taxpayers and their descendants. Deficits only delay the payment of taxes, leaving it to future generations, while the discounted present value of taxes and government spending is equal, which means that the deficit of previous generations' leaves resources unchanged. Consumption, as a function of resource generation, does not change under the influence of tax changes. In other words, the fiscal deficit policies have no impact on the real economy size.

Rikardian School begins from the hypothesis of neutrality of debt, and is based on the following, very restrictive assumptions: 1) the time horizon of the citizens / taxpayers is infinite, 2) differences in tax burdens motivate citizens to intergenerational transfers based on altruism, 3) consumers are rational and farsighted, 4) capital markets are either perfect, or they have specific error, 5) taxes are lump sum, 6) the use of deficit cannot create value and 7) public spending cannot be indefinitely financed by borrowing. Given that these assumptions do not correspond to reality, and that the hypothesis of neutrality of debt cannot be sustained if it leaves any of these assumptions, it is considered that rikardian direction cannot give good instructions for conducting specific budget policy (Arrau, 1990).

The neoclassical and Keynesian paradigm can be complimented quite well, especially when it is seen as two different aspects of the analysis of fiscal policy. Decomposition of deficit to its permanent and temporary component can be concluded that the neoclassical analysis examines the effects of permanent deficits, while Keynesian recognizes the impact of temporary deficit, which should to be taken to stabilize cyclical fluctuations around the equilibrium with full employment. In other words, the neoclassic considers lower debt more favourable from the standpoint of the average national savings, but allows interim government deficits, which are used to stabilize the economy close to equilibrium (Bernheim, 1989).

From the theoretical point of view, it seems that the neoclassical analysis is based on the least restrictive assumptions and that describes most realistic reality. Considering the impact of the deficit on the economy, neo-classicists believe that the key question is whether the deficit is temporary or permanent. Specifically, if consumers focus on their life spending, reducing the deficit caused by the increase of the tax burden, according to neo-classicists, will cause a greater drop in demand if consumers believe that the reduction is permanent. In this case, the government attempt to achieve a balance with greater savings could reduce demand so that it would cause a recession. On the other hand, neo-classicists believe that impact on lasting deficit of any presign on the economy depends on the level of economic development and economic objectives. That is, if private savings are insufficient to achieve the desired level of capital accumulation, then the state must pursue a permanent surplus.

The main drawback of these theories is that those in the study of the effects of the deficit and public debt on economic activity largely ignored: (a) the method of financing the deficit (debt issue or monetary financing), (b) the cause of deficits (increase in government spending or lower tax revenues), (c) the structure of tax revenue and government spending; (d) the period within which to conduct deficient financing (except neoclassical distinguishing between permanent and temporary deficits), (e) whether exogenous policy anticipated or non-anticipated. From this point of view, some recent considering of the impact of deficits on economic activity starts from the fact that, in order to assess the impact of fiscal policy on aggregate demand, it is necessary to develop a model of the economy, and specify the key policies (in relation to which a policy can be expansionary or call restrictive), (Buiter, 1986).

Fiscal spending and economic growth

In discussing the issue of sustainable public debt, it is necessary to focus the analysis of the fiscal sector, given that this is the most important concern of economic policy. A large national debt, when financed from domestic sources, can lead to an increase in taxes, or owing to increase of interest rates to the crowding-out in the private sector. On the other hand, if it is financed from foreign sources, a large national debt may require drastic macroeconomic adjustment, which would lead to instability.

Trend of public expenditure, both overall, and in structure, generally is compared with the movement of gross domestic product and the ratio of these two macro aggregates. From the share of public revenues and expenditures of gross domestic product is statistically considered gross domestic product burden by operations of public consumption needs and pressure in this form of consumption in total consumption, and market prices. That is to look at how much country burdens by its "non-productive" consumption its gross domestic product.

Today, most of the authors most commonly use indicator of the evolution of the debt to GDP, especially after the advent of Blanchard (1990), but also because of the many difficulties in the use of other indicators. This indicator measures the level of debt in relation to the economic activity of the country, which implicitly assumes that for financing debt burden are available all the resources of GDP. However, this may not always be true. On the other hand, this is regarded as the most important indicator for measuring the level of debt, because it indicates the degree of solvency of the government (Blanchard, 1990). At the same time, it is possible to examine the degree of burden of the business sector and the household sector by the volume of public spending.

In this context, a critique of "excessive" government spending and higher tax procedures is the critique of state intervention in the economy, choking of economic activity, but also a source of instability (and the contemporary financial crisis). Data presented in Table 1 illustrate the burden of GDP by expense on the basis of public expenditures of Republic of Serbia.

Table 1. Burden of GDP by public expenditure and revenues (in billion RSD), the consolidated public sector balance

Year	GDP	Public expenditure	Public revenues	Budget Deficit	Share of GDP		
					Exp.	Rev.	Deficit
2005	1.883,5	706,8	724,5	+17,6	37,5	38,4	+0,9
2006	1.962,1	899,3	867,7	-31,6	45,8	44,2	-1,6
2007	2.276,9	1.046,8	1.002,0	-44,8	45,9	42,0	-3,0
2008	2.661,4	1.213,9	1.134,4	-70,5	45,6	42,9	-2,7
2009	2.713,2	1.267,9	1.146,5	-121,4	46,7	42,2	-4,5

Year	GDP	Public expenditure	Public revenues	Budget Deficit	Share of GDP		
					Exp.	Rev.	Deficit
2010	2.986,8	1.359,8	1.225,2	-134,6	45,5	41,0	-4,5
2011	3.293,3	1.460,9	1.302,5	-158,4	44,8	39,5	-5,3
2012	3.267,1	1.622,8	1.405,4	-217,4	49.7	43,0	-6,7

Source: Bulletin of the Public Finance, the Ministry of Public Finance of Republic of Serbia, no. 12, 2011, Tables 1 and 2, and for 2012, the same source in October 2012, Table 1 - assessment.

In the crisis period (2008-2012 years), it is evident the reduction of public revenue and expenditure in gross domestic product, but the decline in the share of public revenues increasing, leading to an increase in the budget deficit. The exception is 2012, which indicates a deepening of the crisis indebtedness.

Data presented in Table 2 indicate excessive public spending and spending and the forms that have become generators of development problems and instability of the Serbian economy.

Table 2. Gross domestic product and charged with public consumption (in %)

Element	2005	2006	2007	2008	2009	2010	2011	2012
Real GDP growth	5,2	3,6	5,4	3,8	-3,5	1,0	1,6	-2,0
Nominal GDP growth	21,9	16,6	16,0	16,8	1,9	10,0	10,2	1,0
The increase in consolidated revenue	10,8	10,5	17,4	12,3	2,5	6,9	6,3	5,9
The increase in consolidated public expense	12,3	23,7	16,4	16,0	4,4	7,2	7,4	11,6
The share of public expenditure in GDP	37,5	45,8	46,0	45,6	46,7	45,5	44,8	49,7
The share of revenue in GDP	38,4	43,6	44,3	41,2	42,2	41,0	39,5	43,0
Budget deficit or surplus - a classic, the primary	+17,6	-31,6	-54,7	-70,5	-125,4	-134,6	-158,4	-217,4
Share of the deficit to GDP (official)	+0,9	-1,6	-3,0	-2,7	-4,5	-4,5	-5,3	-6,7

Source: Serbian Ministry of Finance, Public Finance Bulletin, December 2008 and 2011, October 2012.

The following very important conclusion that follows from the analysis of the data table above is the fact that the budget expenditure in the years of the crisis increases slower than nominal GDP growth, same for the consolidated public revenues. However, the share of public expenditure and revenue to GDP shows some instability, because after three years of

lowing record growth of these aggregates.

Gross product burden on the Serbian economy in comparison to other EU countries is not greater, on the contrary, is lower. However, the main problem is slower economic growth, where the effects of inflation are not reflected in the public sector, given that the real annual increase in expenses and revenues below nominal GDP growth (Nikolić, 2011). Classic (primary) deficit in the years of the crisis holds at the level of 4.3 to 4.5% of GDP, although in total weight year by year increases, so that the problem arose from its funding. On this conclusion point out data given in Table 3.
Data Table 2 refers to the consolidated budget, however, when you observe these relationships in the Republican budget (budget classic country), which is most often said in public hearings, the picture changes significantly.

Table 3. Revenue, expenditure and deficit of Serbia (changes in %)

Element	2005	2006	2007	2008	2009	2010	2011
Nominal GDP growth	21,9	16,5	16,0	16,8	1,9	10,0	10,1
Annual revenue growth budget	10,8	10,5	17,3	12,3	0,7	8,6	4,6
Annual expenditure growth	12,3	20,7	16,6	13,6	6,3	9,8	6,9
The share of expenditure of the budget to GDP	37,0	27,0	27,1	26,3	27,5	27,4	26,6
The share of total revenues of the budget to GDP	37,7	25,1	25,4	24,4	24,1	23,8	22,6
Deficit of the Republic budget (billions of RSD)	+8,2	-35,6	-38,1	-50,8	-90,5	-108,0	-132,5
Share of the deficit to GDP	+0,8	-1,8	-1,7	-1,9	-3,4	-3,6	-4,0

Source: Serbian Ministry of Finance, Public Finance Bulletin, October 2012, http://mfp.gov.rs/UserFiles/File/bilten%20javne20finansije/bilten%%20-%2098%20-%20for%20SRP20web%.pdf

Classical state budget, with all the criticism that has lately been referred to government spending and highlighting the need for reform of the public sector (public finance), cannot be characterized as a large fiscal burden. The problem is extremely weak real economic growth, low tax base and little public revenue to finance public expenditure of the budget (Đurić at al., 2011).

Sustainability problem can be formulated as follows: the budget deficit leads to an increase of the public debt that will have to be serviced in the future. If interest rates on public debt exceed the growth rate of the economy, the debt is set up dynamically, so that the ratio of public debt to GDP ratio deteriorates. It is clear that this can become unsustainable and require corrective action (Ball, Mankiw, 1995).

According to the definition, the public debt is sustainable when its level may remain unchanged for long, and it does not lead to the need to change fiscal policy (Brümmerhoff, 2007). In this sense, Serbia's debt is unsustainable, and fiscal reforms do not contribute to reducing the budget deficit. From this point of view, it is not an appropriate question whether sustainability is achieved, rather it is important the question whether government policies are leading to sustainability.

The dynamics of the annual increase in public revenue and expenditure are less than the annual growth of nominal (infantry) gross domestic product. This tendency is especially pronounced in the new age of crisis, with the increase in revenue is less than the increase in public expenditure. This led to accumulation of budget deficits, lowering the share of public revenue and expenditure in gross domestic product (at 37.7% of revenue to 22.6%, and expenditures from 37% to 26.6%).

The structure and dynamics of the expenditure budget show some problematic trends:

1) Revenue collection efficiency decreases considerably;

2) Public expenditure autonomously behaves in relation to gross domestic product, which leads to the explosive expansion of additional financing of budget expenditures;

3) Budgetary control is significantly limited, and thus the efficiency of funds.

Foreign debt, economic growth and the debt burden

Indebtedness is one of the most serious financial-monetary, balance of payments, developmental, social and political problems of developing countries.

Foreign indebtedness of Serbia with a growing budget deficit and balance of payments and balance of trade becomes major problem of economic development. However, the problem of the foreign debt has another, much more serious side, compared to the very level of public debt and its ratio to gross domestic product. Officially it is stated that it is "relatively low public debt and liveable." But this is only part of the total debt related to the public sector (government). Serbia's total public debt is much higher, and a heavy burden of the national economy, not only GDP but also the development of the economy. Furthermore, we point out that the ratio of debt to gross domestic product almost does not matter when assessing the actual indebtedness of the economy and the debt burden. There are many more important indicators of debt burden indicators and debt levels, and indications of a possible debt crisis.

The optimum amount and structure of foreign debt is the result of the optimal ratio of national production and consumption, as well as other basic macro aggregates of the economy. Namely, the foreign debt and behaviour indebtedness of the resultant is dynamics, quality, structure and stability of the national economy. From this point of view, the size and structure of foreign debt to the additional accumulation from abroad is seen as an active and an additional factor of economic development, not only to temporarily fill the gap between domestic savings and investment, but also leads

to efficiency incentives and social profitability of investments, the use of domestic investments, especially in the phases when the cost of capital in the global market is extremely high (Bernheim, 1989).

When analysing the impact of public debt on economic growth, it is common to consider the relationship of gross domestic product and foreign debt, as well as their yearly schedule. The importance of considering the level of foreign debt and annual debt burden on that basis, may be called the autonomous phase of growth which is indisputable. In this sense, we present data on the amount of foreign debt, economic growth and the debt burden of the Serbian economy (Table 4).

Table 4. Foreign debt, economic growth and the debt burden (in billions of EUR)

Year	GDP	Foreign debt	Annual GDP growth (in %)	Debt increase (in %)	Debt/GDP
2002	16.028	9.402	4,2	2,9	58,8
2003	17.306	9.678	2,5	2,2	55,9
2004	19.026	9.466	8,4	-2,2	55,9
2005	20.306	12.196	6,2	28,8	60,1
2006	23.305	14.182	5,3	16,2	60,9
2007	28.468	17.139	7,2	20,8	60,2
2008	32.668	21.088	5,4	23,0	64,6
2009	28.883	22.487	-3,5	7,0	77,9
2010	28.984	23.786	1,0	5,8	82,1
2011	31.140	24.825	1,9	4,4	79,7
2012	30.074	25.721	-3,4	3,6	85,6

Source: NBS, Inflation Report, February 2013, table A and B.

During the period of the explosive spread of foreign debt (2005-2012) average rate of growth of debt is as high as 15%, while the average rate of economic growth around 3%. Consequently, the growth of debt at this stage is about five times faster than the growth of national wealth. Debt-to-GDP in the last five years is constantly growing in 2012 amounted to 85.6%.

The severity of these problems can be realistically seen from Table 5 data on the behaviour of foreign debt and GDP calculated at the real exchange rate (the equilibrium exchange rate that eliminates the difference in inflation rates in our economy in the developed EU countries, adjusted for rate changes undergone during the course - or devaluation revaluation of course). The data show a more realistic picture compared with the movements of nominal gross domestic product in the euro translated at average exchange rate of the current.

Table 5. The share of foreign debt to gross domestic product - the current and equilibrium (real) exchange rate (in millions of EUR)

Year	Official course Euro	The equilibrium course Euro	external debt	Official GDP	GDP per equilibrium. course	Debt-in GDP	
						Official	By equilibrium course
2005	85,5	114,2	12.196	20,306	14.767	60,1	82,5
2006	79,0	130,6	14.182	23.305	14.987	60,9	95.4
2007	79,2	141,0	17.139	28.468	16.148	60,2	106,1
2008	88,6	143,0	21.088	32.668	18.611	64,6	113,3
2009	95,9	138,0	22.487	28.883	19.661	82,1	106,6
2010	105,5	134,3	23.766	28.984	22.288	82,1	106,6
2011	104,6	142,3	24.825	31.140	23.377	79,7	110,4
2012	113,1	150,4	25.721	30.074	21.723	85,6	118,4

Source: as for the previous table - by calculation.

The data suggested that the highly overvalued exchange rate in a number of years, leading to unrealistically high GDP expressed in euros, since nominal GDP converted into undervalued euro, leading to the "inflated" inflate GDP and decreasing share of foreign debt and liabilities of debt to GDP. This phenomenon can be partially explained by the so-called Balassa-Samuelson effect this. Higher inflation in developing countries means higher nominal GDP, which contributes to the reduction in the public debt / GDP (Balassa, Samuelson, 1964). The practice of presenting the budget deficit and public debt of Serbia confirms this conclusion.

Level Indicator and debt burden, which is defined by the ratio of debt to gross domestic product is not enough, because it does not fully reflect the level of indebtedness of any state. The problem is not the level of debt and debt-to-GDP, but the amount of annual debt obligations (interest and repayments) and the growth of gross domestic product, and the structure and terms of debt and the effects of their use. It is usually quite unrealistic and distorted purely statistical relationship, especially because of the unreality of expressing Gross Domestic Product. If you take only the debt of the public sector (the state of Serbia), which is mostly done, then the ratio is about 60%, and it is claimed that Serbia is one less charge in comparison with other European countries, and in this way, one gets the wrong conclusion the fulfilment of the convergence of the Maastricht criteria key.

To refine the overall indebtedness of the country, as well as the necessity arises the need to consider the following important relations. 1) Short-term and long-term debt, 2) of the maturities of debt and GDP growth, 3) the amount of interest as fixed obligations; 4) systems using debt (productive, unproductive) and the efficiency of the economy and the social product, and 5) the relationship due debts of debt and GDP growth, 6) height of the trade deficit and balance of payments; 7) the dynamics of economic growth and the growth rate of foreign debt, and 8) the ability of the debt write-offs, and 9) the amount and structure of foreign

exchange reserves, 10) readiness of the international financial institutions (IMF , world Bank, etc.) to ease the burden of debts, 11) trends in the global capital markets (interest rates, terms, availability) and others (Hubbard, 2011). In this sense, the model of the bank of England is quite instructive (Bank of England) which simulates the behaviour of 17 endogenous and 17 exogenous variables included in the 18 equation, for optimum results in the movement of GDP (Arestis, Sawyer, 2004).

It is obvious that this is a series of indicators that each government has to follow to guide policy, optimal external debt and international liquidity, in order to prevent entry into the debt crisis, and international insolvency. From this point of view, the ratio of debt to gross domestic product does not mean a lot as an indicator of indebtedness, but annual economic growth and rising debt and liabilities of the debt during the year, but show that you are weak or strong general development of the economy or the power of moving in the direction of over-indebtedness and the emergence of so-called „noose of debt" (Arestis, Sawyer, 2004).

The structure of foreign debt by sector

The structure of foreign debt holders is very important, especially in terms of their conditions of use, routing, and effects that give the local economy. The debt of the state (public sector) in the last years is constantly lowering that, while the debt of banks and the economy (which is due to high foreign exchange reserve banks borrow directly abroad) has been increasing. Not foreign debts of banks and companies only their concern, but it is a part of the total debt obligation from which the following payments and interest rates, which ultimately pays the total economy (Arestis, Sawyer, 2004).

Table 6. The structure of foreign debt by sector (in millions of EUR)

Element	2001	Structure	2012	Structure	Change 2001-2012.
Public sector	10.256	93,5	10.900	42,4	+644
(in that NBS)	309		1.596		1.287
SPU	-		453		453
Short-term	150		-		-150
Enterprise	607	5,5	9.930	38,6	+9.323
Long-term	38		9.832		+9.794
Short-term	569		98		-471
Banking sector	105	1,0	4.891	19,0	+4.786
Element	**2001**	**Structure**	**2012**	**Structure**	**Change 2001-2012.**
Long-term 10	10		4.277		+4.267
Short-term	95		614		+519
Total debt	10.968	100	25.721	100	+14.753

Source: Bulletin of Public Finance, December 2011, p. 21, Table 8, for 2012 according to the end of October.

Table 7. The dynamics of foreign debt holders (sectors), (in million EUR)

Year	Public sector	Participation in total (%)	Private sector		Total	Participation	Total external debt
			Banks	Economy			
2001	10.256	93,5	105	607	712	6,5	10.968
2005	7.892	64,7	1.754	2.550	4.304	35,3	12.196
2006	6.592	46,5	3.477	4.113	7.590	53,5	14.182
2007	6.285	36,7	3.606	7.248	10.854	63,3	17.139
2008	6.521	30,9	3.524	11.044	14.568	69,1	21.088
2009	7.764	34,5	4.310	10.414	14.724	65,5	22.487
2010	9.076	38,2	5.093	9.617	14.710	61,8	23.788
2011	10.607	44,5	4.291	9.586	13.877	55,5	24.825
2012	10.900	42,4	4.891	9.930	14.821	57,6	25.721

Source: Bulletin of Public Finance, no. 12/2011, p. 21 and October 2012.

The explosive growth of foreign debt occurs in the private sector during this period increased by 712 million euros to 14.8 billion, or 6.5% of the total to nearly 60% (Table 6 and 7). Commercial banks are due to high foreign currency reserves (which ranged between 45% and 60%) were referred to the company direct foreign borrowing by banks and other financial institutions. In this way increased the outflow of interest and repayment.

Given the fact that the banks control almost 90% of the assets of the Serbian banking system, realistically assumed that their banks 'mothers' support (or guarantee) their borrowings. In addition, it should be noted that private sector borrowing abroad may be based on erroneous beliefs about the relatively stable exchange rate, which can deepen the financial crisis. One gets the impression that this kind of borrowing, for now, is not significant.

The structure used loans enterprise sector is very unfavourable and cannot be linked to a greater impact on the acceleration of economic growth. For financial services related 1.9 billion euros in real estate activities and renting 2.1 billion and 1.7 billion in trade. Manufacturing uses only 935 million (that production of food and drinks almost half).

In terms of the amount of the effective interest rate on foreign debt should be noted that the weighted average interest rate on total debt is 5.1%, the debt of the public sector 4.8% and 5.2% of the banking sector and enterprise debt 5.4%. The problem is that the share of loans with variable interest rate is extremely high, and thus the interest rate risks. For those of total debt is 76%, and 85% of the banking sector and 88% of companies, leasing companies, 98% and 48% of the public sector (NBS, 2011 and 2012).

From these relationships arises the problem of defining the strategy for the development and financing, to ensure the payment of debts and obligations secured space for dynamic growth and breaking the "debt blocking" or actual "loop debt". The reasons for this is the fact that

financial capital, which is the encroachment, other means are not needed to conquer new markets and the economy, but depending on the use and behaviour of the world's financial capital (banking, private, public, or international institutions) (Arestis, Sawyer, 2004).

Effects of increment in gross domestic product and debt growth

The ratio of debt to gross domestic product, which is often used as an indicator of the debt burden, not a true indicator of external debt. It pertains to a year accrued obligations of foreign debts and annual growth of gross domestic product, because it actually shows that you are creating a loop of debt and whether growing debt burden. This circumstance indicates data for the period 2002-2012 (Table 8).

Table 8. Annual growth in gross domestic product and the annual external debt obligations (in %)

Year	Growth GDP (%)	Annual growth of foreign debt (%)	Share of liabilities to GDP	Annual population growth (billion EUR)		Debt to GDP
				GDP	DEBT	
2002	4.3	2,9	1,6	3,2	0,1	67,2
2003	2,5	2,9	2,5	1,4	-0,6	62,3
2004	9,3	-2,2	5,0	1,7	0,1	54,3
2005	5,4	28,8	7,6	1,3	2,7	64,8
2006	3,6	16,3	9,9	1,5	1,8	60,9
2007	5,4	20,3	10,2	3,1	2,9	64,6
2008	3,8	23,0	10,5	4,2	3,9	67,6
2009	-3,5	7,0	13,6	-3,8	1,4	77,9
2010	1,0	5,8	9,4	0,1	1,3	82,1
2011	1,9	4,4	10,3	2,9	1,0	77,9
Average 2002-2012	3,4	9,0	8,1	15,6	14,6	68,2
Years of crisis 2008-2012 Average	0,8	10,0	11,0	3,4	7,6	77,0

Source: NBS, Inflation Report, February 2013, p. 46-47.

Annual growth of debt and the amount of debt maturing obligations indicate that strengthens or weakens the general development of the economy or the power enters the zone of over-indebtedness and inability to service foreign debts. The economic growth rate (GDP), which is generated over 70% of services that are not "export product" in the period 2002-2012 average is about 3%, while in the same period, the average annual growth of foreign debt 9% and share of the debt obligations of 8.1% (with a constant tendency to increase).

GDP growth is almost three times slower than the growth of debt and liabilities for the debts. As part of the debt obligation greater than the rate of growth - GDP growth is not sufficient to service the foreign debt. Typical is the period of the crisis (2008) to the end of 2012 year. In this period, the average GDP growth rate falls to 0.8%, the growth of foreign debt was approximately 10% and debt obligations of 11%. In this period there is a negative GDP growth of 3.0 billion euros, while foreign debt rose by 7.6 billion euros (Table 9).

Table 9. A period of crisis and foreign debt liabilities (million EUR)

Year	Interest	Payment	Total	Annual growth, GDP	Growth of GDP minus liabilities	Annual growth in debt
2008	184,2	3.269,0	3.453,2	4.200	747	3.949
2009	233,4	3.080,6	3.314,0	-3.785	-7.099	1.319
2010	323,6	3.079,5	3.403,1	101	-3.302	1.299
2011	369,1	3.693,1	4.062,2	2.857	-1.205	1.039
2012	424,4	3.858,0	4.282,4	-1.066	-5.348	896
Total	1.534,7	16.980,2	18.514,9	2.307	-16.208	8.582

Source: Same as for the previous table.

Participation obligations are growing rapidly, so that it can be considered that there were a lot of breaks. Obviously, the external debt "replaced" means usually large and inefficient privatization. Sell off the nation's wealth has replaced the large debt and external debt. Of course, this leads to the large outflow of national savings (accumulation) abroad.

Table 10. Annual servicing of foreign debt (in million EUR)

Year	Repayment and interest	GDP	Foreign debt	DEBT/ GDP in %	Repayment and interest in GDP	Repayment of the export	The rate of economic growth
2001	103	12.821	12.609	98,3	0,8	3,7	5,6
2002	218	16.034	10.768	672	1,4	7,1	3,9
2003	348	17.416	10.857	62,3	2,0	9,1	2,4
2004	736	19.075	10.355	54,3	3,9	16,8	8,3
2005	945	20.358	13,964	64,8	4,6	17,9	5,6
2006	1,635	23,305	14,889	63,9	7,0	23,1	5,2
2007	2.885	28.468	17.789	62,2	9,8	33,4	6,9
2008	3.453	32.668	21.088	64,6	10,8	34,5	5,4
2009	4.314	28.863	22.487	77,8	11,5	39,1	-3,5
2010	3.403	28.984	23.786	82,1	11,7	34,0	1,0
2011	4.062	31.140	24.825	77,9	12,7	35,4	1,9
2012	3.858	30.074	25.721	85,6	14,5	36,4	-3,4

The share of payments to GDP increased from 0.8% in 2001 and 4.6% in 2005 to 14.5% in 2012. The above data show that the outflow of capital in the last two years higher than the overall growth of gross domestic product. Comes to an outflow of capital from the country abroad. Participation in the brain annual increment of gross product in 2008 was about 4%, which increased in 2009. to over 160% due to negative rates of GDP growth of minus 3.5% (Table 10)

The problem is evident in the fact that the debt obligations from year to year increase (from 103 million in 2001 to 3.4 billion in 2008, and 4.3 billion in 2012) So that in recent years is not enough growth domestic product (1-2%) to be serviced and interest payments on the debt. Liabilities from debt to fully absorb the entire increase in the gross domestic product.

For many loans it received a favourable "grace period", which was to be used for revival of investment and development - to be able to repay the loan growth of the gross domestic product. It is essential, therefore, to be used and what effects the accumulation of income and give foreign loanable funds (whether used for production and investment, and how much goes for other forms of final consumption - personal and budget). Hence it can be seen that the economy is moving in excessive external indebtedness, insolvency and debt crisis. "The noose of debt" is already tightening when the debts increase faster than gross domestic product.

If we want to see the real state debt burden, repayment options (service), the possibilities of new borrowing, encouragement of domestic investment and production of foreign capital and the like. It is necessary to make (and follow) the right of all matrix units that decide to act on the optimum and maximum levels of foreign debt, without having to fly in a debt crisis. Has the economy, such a strategy? Borrowing much from the elements on a case by case basis, no development strategy and borrowing. On the other hand, it is good to be wary of over-borrowing policy and "absorption" of foreign capital without jeopardizing economic growth. The basic problem of which the capital is taken, under what conditions and how they are used. One cannot a priori be against foreign capital.

Conclusion

High public debt, especially if it's on its foreign component does not contribute to economic development and must not be an instrument to underpin economic growth. In regard to this, the government should take measures that contribute to the harmonization of public debt and its servicing capabilities. Otherwise, a short-term policy is qualitatively narrowing of space for future decisions. The use of debt to finance the current deficit or investment projects in the state, and such costs borne by the future, the most negative impact on the flexibility of public finances, which consist of slow economic growth in the coming years.

Height Serbia's public debt is very troubling, no matter what is still - in part - below the level of 60% of GDP Maastricht criteria specified. The problem is the rate of growth of total public debt in Serbia in recent years, which was higher than the growth rate of GDP, and the unwillingness of the Serbian government to take measures that would lead to fiscal stability and sustainability of public finances.

Optimum limit of public debt is considered to be the amount of debt that ensures the achievement of desired economic stabilization objectives, financial market development and economic growth, while at the same time not jeopardizing the potential economic and social development. However, the growth of gross domestic product and the maturity of the debt obligations Republic of Serbia suggest that the debt burden increases, debt and weak development of the economy and the power of the state and threatened to open debt crisis, with the emergence of foreign insolvency. In this context, the government should not get into that state of over-indebtedness leads to financial insolvency and instability, which can be achieved so that the rate of growth of public debt in the long term is not greater than the rate of growth of GDP.

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POSLEDICE FISKALNOG DEFICITA I JAVNOG DUGA PO FINANSIRANJE JAVNOG SEKTORA

Aleksandra Tešić[4], Dragan Ilić[5], Anastazija Tanja Đelić[6]

Rezime

Budžet države je ušao u budžetsku krizu koja će se zaoštriti u sledećim godinama zbog niske stope privrednog rasta, relativno sve manjih prihoda i teškog i sporog smanjivanja javnih rashoda (zbog visoke neelastičnosti naniže). Budžetski deficit i teret javnog sektora su u poslednjim godinama izuzetno povećani u odnosu na finansijsku i razvojnu moć privrede i sektora stanovništva. Preorijentacija na kreditno finansiranje javnih rashoda i budžeta dovodi do ogromnog tereta kamata na dugove i otplata dospelih obaveza. Učešće plaćenih kamata u toku godine u bruto domaćem proizvodu je veće od godišnjeg prirasta bruto proizvoda. Ako se tome dodaju i otplate, tada nastaje faza u kojoj je masa kamata i otplata veća od mase dodatnog godišnjeg bruto proizvoda. Treba posebno istaći da je godišnja dinamika rasta javnih rashoda i prihoda ispod stope nominalnog rasta bruto domaćeg proizvoda i da je sve teže finansiranje javnog sektora, čime je ugroženo njegovo normalno funkcionisanje.

Ključne reči: *budžetski deficit, investicije, javni dug, potrošnja, ekonomski rast.*

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Review Article

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EU COMMON AGRICULTURAL POLICY AND PRE-ACCESSION ASSISTANCE MEASURES FOR RURAL DEVELOPMENT

Jelena Vapa Tankosić[1], Miroslav Stojsavljević[2]

Summary

Common Agricultural Policy is one of the keystones of European Union. This paper explores the functioning and the course of reforms of the Common Agricultural Policy of the European Union, as well as potentials of Instruments for Pre-Accession Assistance, for improving agriculture and ensuring rural development in candidate countries. Successful adoption and implementation of European Union's agricultural standards and values in future member countries largely depends on proper implementation of standards and mechanisms necessary for using pre-accession assistance instruments. In this paper current situation in Republic of Serbia, as candidate country is compared to experiences of the Republic of Croatia from the period before full membership status, and the Republic of Slovenia as a member state. The conclusions of the paper confirm the hypothesis, that the Republic of Serbia must establish network of bodies for using pre-accession assistance instruments, which requires numerous changes in the structure and organization of the agricultural sector.

Key words: *Common Agricultural Policy, reforms, pre-accession assistance, European integration.*

JEL: *F15, 013, Q01, R11*

Introduction

In 1962 European Union started to apply Common Agricultural Policy, one of the first supranational economic policies in modern times. Each country in the World approaches food production with great seriousness, but transnational, common policies and funding models are rare, unlike financing of agriculture in the European Union. This project has made some significant positive effects: stability of agricultural and food products market,

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increase of manufacturers' revenue, security of supply and independence from imports, but its powerful and direct actions have caused also some negative consequences that reflected in large budgetary spending, differences emerged between manufacturers and regions in the EU itself, but also environmental problems resulting from too intensive production, i.e. use of chemicals and excessive use of resources in general. In order to solve problems and adjust agricultural policy to suit the needs of each member country, European Commission introduced a number of reforms of the Common Policy, the first one taking place in 1968, then 1972, then in 1985.

The importance of agriculture to the EU can be observed from several data that illustrate its role in the economy of this community. Agricultural and food industry provide over 15 million workplaces in the EU, accounting for 8,3% of all employed citizens of the Union. This is the average size for the entire EU, which varies significantly from one country to another. In the so-called "old" EU member states (15 industrially developed countries of Western Europe) the average value is 4%, while in the "new" Member States (Romania, Bulgaria, Slovakia, Hungary) more than 12% of total workforce is engaged in agriculture and food industry. Agricultural production participates in the GDP of the European countries with 2-3%, but in countries such as Bulgaria and Romania it can amount to up to 10% of the national GDP. The total production value of the agricultural sector in 2008 was estimated at 635 billion EUR (European Commission, 2012 a). Utilized Agricultural Area (UAA): arable land, permanent grassland or land used for permanent crops or any other form of exclusively agricultural use (kitchen gardens, for example), occupies 1,7 million square kilometres of European Union land surface. Arable land makes 60% of total EU UAA, permanent grassland 33% and permanent crops 6% (Eurostat, 2012). Structure of this land differs in various countries - in Spain, Ireland, Austria, Slovenia or United Kingdom arable land makes less than 50% of their total UAA and areas of grassland are significant, whereas situation is opposite in Germany, France or Poland.

In this paper, functional principles and reforms of the Common Agricultural Policy of the European Union are discussed from theoretical economy perspective. The starting point for further analysis of the IPA and its' agriculture component, IPARD, which follow after is a brief analysis of the evolution of the CAP, allowing identifying the most important factors determining the common policy, its' further modifications, and finally the pre-accession mechanisms that enable candidate countries to adjust national agriculture sector to comply with the Union practice and rules.

Hypothesis of this paper is that CAP and specially IPA programs in its fifth component of rural development section (IPARD) give strong impediment to overall improvement of national agriculture sector and to the economies as a whole. Candidate countries must establish clearly modelled administrative and financial structures in order to be able to use funding and other forms of assistance from European Union. Methods used in this paper are comparative analysis of data and selected literature available on the subject.

European Union Common Agricultural Policy (CAP)

After World War II shortages of food presented huge problem for European citizens and concerns about future were very serious and agricultural policies of European countries were recognized by their governments as one of most essential issues (Jambor, Harvey, 2010). Consequently, with beginning of forming common European market, protection of domestic food production and sufficient supply of quality food for citizens presented one of primary goals. Introduction of Common Agricultural Program was the result of public choice of governments decided to take action designed to bring certain social values (Wilkin, 2009) and logical step to secure stabile food supply and at the same time good business conditions for producers. In year 1960 European Commission presented plan for introducing Common Agricultural Policy (CAP) with three main principles: free trade in agricultural products between member states, preferences in European market for domestic producers and common financing. Agriculture became one of the most important, in not the single most important sector in Europe's integration process (Fritz, 2011). Sicco Mansholt, former Dutch agriculture minister and President of the European Commission (1972-73), was first to propose common European agricultural market, arguing that there are four main reasons for this:

i. It was not possible to exclude agriculture from integrated market and clearly distinguish industrial and agricultural products;

ii. Agriculture played important role in the economies of member states;

iii. Fluctuations of food prices on national level strongly influence all other sectors and those prices are directly connected to agricultural policy;

iv. Changes and adjustments in the agricultural sector are essential in connection with general economic growth.

Implemented at the national or supra-national level, agricultural policy is sectoral public policy aimed to deal with problems that are not solved by the regular market mechanisms (Wilkin, 2009). The Common Agricultural Policy of the European Union is a system of financing, subsidizing and other measures and policies that are implemented in the member states. It is defined in Chapter III, articles 38 to 44 of the Treaty on the Functioning of the European Union. In the first years of the Union's existence, a large part of the EU budget was set aside for the implementation of the Common Agricultural Policy. Today, around € 55 billion is earmarked for the implementation of this part of budget, which represents about 40% of the total EU budget, i.e. about 0.5% of GDP of the EU (European Commission, 2012a).

Although it is highly industrialized, within the EU there are significant rural areas, which encompass 56% of the Union's population. Among other things, that fact is a significant motive for the EU's extensive work on the development of rural areas, which is more than just stimulating and enhancing agricultural production. This common policy is being developed as a follow up to the Common Agricultural Policy of the EU,

in order to contribute to economic and social cohesion, i.e. balanced development of the member states in the area that may be particularly affected by the functioning of the common market. It is based on the Council of Ministers' Regulation 1257/99, whose primary duty is to support the modernization of agricultural production. The main and most important goal of a unified rural policy of the EU is to provide support for the modernization of agricultural production structures in order to produce more and more economically, but also to improve the standard of living of the rural population, with great care for environmental protection. Maintaining the quality of life of rural communities is sought through improvement of their diversification, so they can change their orientation from traditional production (crops, livestock) towards new activities, such as cultivation of herbs, fruits and vegetables, wine, production of alternative fuels - biodiesel, natural gas, etc. These measures are designed to create conditions for alternative sources of income and employment for farmers and their families, and also to create benefits for the broader community. Article 39.1 (b) of the Rome Treaty deals with quality of living of citizens in rural areas and requires that their earnings should be maintained at the level common for industrial workers (Fennell, 1997).

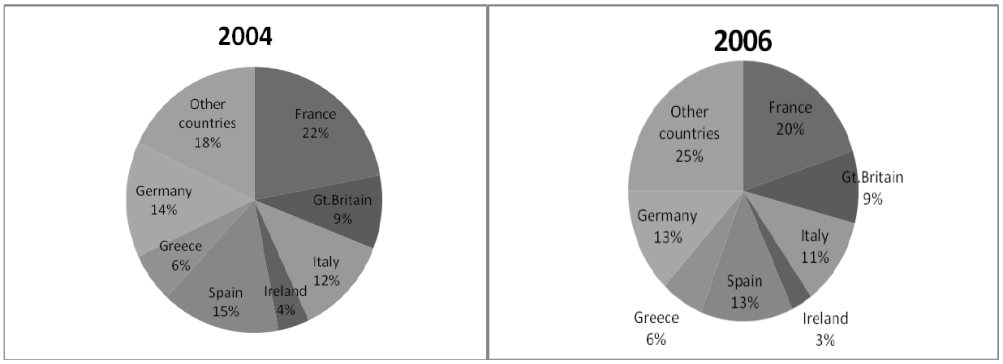
Table 1. Share of CAP in the EU budget (in EUR Million)

Year	EU Budget Total Payments	CAP Budget	% CAP/EU Budget
1970	3.385,2	3.166,5	93,5 %
1975	5.816,9	4.404,4	75,7%
1980	15.857,3	11.606,5	73,25
1985	27,867.3	20,413.3	73.2%
1990	44,062.9	27,429.9	62.2%
1995	66,547.4	37,021.0	55.6%
2000	80,448.9	41,828.0	52.0%
Year	**EU Budget Total Payments**	**CAP Budget**	**% CAP/EU Budget**
2005	103,999.6	51,290.1	49.3%
2010	120,490	55,183	45.8%

Source: Authors analysis based on Adinolfi et al, 2011

Funds for this purpose CAP form a significant portion of the EU budget (Table 1). In 1984, 71% of the EU budget was earmarked for agriculture, 1992, that percentage was 48%, with a reduction plan providing for 32% participation of agriculture in the total budget of the Union in 2013 (Stojsavljević, Brkanlić, 2012).

Picture 1. Percentage of usage of CAP funds by member countries



Source: Authors calculation based on data from European Commission (2012)

Within the Common Agricultural Policy various types of financing are combined, such as direct subsidies, dictating prices, import duties, quotas and other mechanisms of intervention. France, Spain, Germany, Italy and Great Britain are the member countries that have used CAP funds at most (Picture 1).

In regard to the budget for the 2007-2013 period, the following main topics on which the EU Common Agricultural Policy will focus were defined:

a) Increase of competitiveness of agriculture and forestry;

b) Improvement of the environmental situation – taking care of the environment;

c) Improvement of the quality of life in rural areas and diversification of agricultural economy.

It can be noted that these are slightly modified basic objectives of this policy, and it is indicative that the methods of influence on the production and prices through interventionist, indirect mechanisms that dominated during the mid-nineties of the twentieth century, are gradually but surely, being abandoned through turning towards the methods of achieving goals by improving the quality and competitiveness of products. Another significant change in the structure of EU agricultural budget is reflected in the clear orientation to direct funding of manufacturers. Measures of the Pillar 2 of the Common Agricultural Policy are directed towards the general development of rural areas through the diversification of production, adaptation and modernization of farms, development of marketing and market appearance in general, education, etc (Živadinović, 2010). The funds are awarded on the basis of local and national plans, created by lower territorial organizational units, but approved by the EU bodies.

Costs related to agricultural production, the increase of its productivity and competitiveness, environmental protection and overall development of the rural areas of EU member states still represent the dominant part of the European budget, but the trend of continuous reduction of this share is very obvious. If by 2013 the share of agricultural in the overall

budget achieves the planned 32%, it would represent a more than twofold reduction in expenditures as compared to the mid-twentieth century, when almost 80% of the EU budget was spent on financing of the Common Agricultural Policy, while in 1968 CAP payments accounted for 86,9% of all EU implemented payments in that year (European Commission, 2013c).

CAP reforms

Being extremely important and at the same time very sensitive issue, CAP regulated agriculture production of the European Union has been under huge pressure both by various domestic and external factors. The complexity of such problems was expressed in many segments of the agricultural policy of each country as per the following: the question of the general position of agriculture in the country, the issue of improving the income of farmers, the issue of overcoming unfavourable agrarian structure, the issue of surplus labour in agriculture, question of low labour productivity, the question of precise measures of social policies for agricultural producers and many others (Cvijanovic et al, 2011). Present from the very beginning, strong international criticism was mainly turned to export subsidies granted to European producers, disrupting competition on the global market. Tensions alleviated 1973 with UK, as one of world's major food importer, joining European Union (Jambor, Harvey, 2010).

This event coincided with the first global oil crisis (1974) and commodity price spike that followed, including raise in prices of agricultural products as well. As a result, farm costs in Europe rapidly increased. A variety of changes in CAP has been taken, including introduction of milk quotas (1983) and freezing of supported agricultural prices (1984). In 1988 "Maximum Guaranteed Quantities" measure has been introduced, meaning automatic reductions of subsidies (and prices) if the total production exceeded the planned level within the EU. In order to reduce extra production even a mechanism of "voluntary set-aside" was used, where a financial compensation has been paid to farmers who seize their agricultural production. Such policy of the EU aimed to reduce in budgetary costs and to cope with international criticism resulted in European farmers' dissatisfaction, because their income became much lower than one in the non-agricultural economy sectors. Further reductions of agricultural products prices supporting measures were politically unacceptable, despite the growing external pressure mainly related to the 1986 GATT Uruguay Round (Grant, 1997).

One of the most significant turning points in EU agricultural policy was carried out by its reforming in 1992. Surpluses of agricultural and food products, growing discrepancies between regions and member states, as well as constant pressures from both non-European and European countries outside the EU forced the authorities of the Union to create a turning point through abandoning indirect measures and increasing the proportion of direct financing of manufacturers in the agricultural budget of the EU. Funds for rural development in general received an important place in the budget for the first time, and although they were not directly related to agricultural production, they contributed to the changes in previous policy of financing of rural areas in the European Union.

Among most important goals of this reform was the reduction of prices of agricultural and food products in order to increase their competitiveness in domestic and global markets. In this way, decreased revenues of manufacturers were compensated through direct payments, which represented a great novelty in the conduct of the Common Agricultural Policy of the Union. In addition, this reform introduced additional measures for the regulation of markets and environmental protection (Trinity College, 2010). The 1992 reform turned out successful, but the changes that occurred in the future - international events, enlargement of the Union by joining of several Central and East European countries, the introduction of common currency, increasing the competitiveness of products of third countries and a new round of negotiations within the World Trade Organization, required further adjustments. New CAP reform starting from year 2014 seems to be one of the most significant ever undertaken. The list of planned changes is long - transfers between pillars, capping and degressivity, regional implementation of the Basic Payment Scheme, internal convergence, greening equivalence, young farmers and the optional schemes including redistributive payment, coupled support, etc., as well as the approach towards sectorial cooperation and contracts (European Commission, 2013b).

Current support for rural development is carried out through the European Fund for Routing and Guarantees in Agriculture, as the primary fund of the Common Agricultural Policy. Due to the specific needs of rural development, various programmes are constantly introduced, such as LEADER (*Liaison Entre Actions de Développement de l'Économie Rurale* or "Connecting activities within economic development of agriculture") that was initially created in 1991, and which finances and encourages active involvement of local rural communities in the development of the local economy, but also the economy of the entire Union (European Commission, 2012b).

The next great change of the Common Agricultural Policy - the so-called "Agenda 2000" - followed in 1999 when funding of the "second pillar" of the policy further enhanced, and resources dedicated to comprehensive rural development (not just agricultural production) became increasingly important. As an illustration of the adaptability and long-term planning of agricultural development by the European organizations, we may use the example of a special program that was created in 1999 as part of the "Agenda 2000" in order to prepare and assist the countries of Central and Eastern Europe, which at that time were in the process of EU accession. SAPARD (*Special Accession Programme for Agriculture & Rural Development*) envisaged that the annual budget of 560 million Euros during a six year period (2000-2006) should develop the sustainability of agriculture and rural development in candidate countries. Its primary objective was to respond to priority problems of adapting the economies in these countries in order to be sustainable, and to help them achieve the standards of agriculture that exist in developed countries - members of the European Union. For the countries that are bearing status of a candidate in the following period (after 2006), the same role which SAPARD had in the previous extension is today played by the fifth component (Rural Development - IPARD) of the Instrument for Preaccession Assistance (IPA).

One of the more important changes of the Common Agricultural Policy, considered by many analysts as the most radical in the history of CAP, took place in 2003, mid-term of "Agenda

2000". The "Fischler Reform", named after Franz Fischler, then European Commissioner for Agriculture and Rural Development, introduced decoupled single farm payments, practically bundling of all agricultural production linked payments into a single payment, to be paid to farmers on the basis of their historic entitlements and linked to land (farm) rather than production. Furthermore, eligibility for those payments was subject to cross-compliance with EU environmental, animal welfare and food safety standards. Apart from this, "Fischler Reform" introduced two new instruments that anticipated future developments of the CAP:

1) Sectoral Reforms - continuation of reductions in support prices with changes to the market regimes for problem commodities such as durum wheat, rice and rye, and

2) "Modulation" - transfer of funds from Pillar 1 to Pillar 2, i.e. subsidies to rural development by reducing subsidies to large farms. In other words very large farms received less money than they would if rated by surface, and additional funds are moved to rural development (Paun, 2012).

For the period between 2007 and 2013, encompassing plans for significant reduction in the share of agricultural budget in the total budget of the EU to 32% - less than half of the share of this segment in the EU budget until mid-eighties of the 20th century. Some authors argue that serious changes in CAP were introduced only in last decade (Garzon, 2007), but in any case importance of this sector can be clearly seen in role it has in European Union and all member countries. External factors strongly influence CAP reform process. There are four major institutional factors that have important impact to CAP (Jambor, Harvey, 2010):

a) EU budget – main problem is financing of the Pillar 1 exclusively from the EU budget, in contrast to all other European policies, that are partly financed from national budgets of member countries. Also, there are voices that argue that there are other policies than agriculture that deserve more budget financing, such as common security, climate change or energy resources (Jambor, Harvey, 2010);

b) WTO negotiations – external pressure regarding international trade in agricultural products and financing of domestic farming and production in EU has always been present;

c) EU competition law and practice for regulation competition between member states – main problem is preventing member states to take advantage in financing domestic farmers at expense of the others Union members;

d) Lisbon Treaty – as a result of this agreement, both EU and national parliaments have stronger and more direct control over common policies, including CAP.

Fighting difficulties in Euro zone as a result of global crisis, next reform of the CAP that should be implemented from 2014 opens opportunity to use its budget in next period (2014-2020) as a contribution to stronger fiscal discipline in member countries (Tangermann, 2011). Newest CAP reform continues trend to encourage and finance environmental protection projects, among other instruments with making one third of direct per-hectare payments directly connected with agricultural practices that are beneficial for the environment. Organic agriculture production will be one of most interesting areas in the future of food

production. Although organic food today accounts for only 1% of total world food market, one should bear in mind that organic food production in developed countries like the USA, France, Germany or Japan is growing at the rate of 10-20% annually (Antevski, 2012). It also aims to redistribute per-hectare payments from countries with currently higher payments to those who receive less stimulation, as well as distribution of funds more in favour of small farms in order to achieve better equity among producers (Andolfi et al, 2011). General idea of the 2014 CAP reform is to keep expenditures at constant level and in that way achieve certain saving, therefore expenditure for period 2014-2020 is planned at EUR 423 billion, what is very conservative increase compared to EUR 412 billion in the period 2007-2013 and in constant prices it actually represents budget reduction (Table 2.).

Table 2. CAP implementation inside Heading 2 of the 2007-2012 Multiannual Financial Framework (in EUR Million)

Element	2007	2008	2009	2010	2011	2012
HEADING 2 Preservation and Management of Natural Resources	54,018	52,267	50,798	56,060	56,380	57,948
Total CAP Budget (%) of which for:	52,878	51,256	49,998	55,183	55,324	56,826
1.Market related expenditure, directs aids and healthy actions	42,075	40,727	41,259	43,690	42,763	44,073
2. Rural Development	10,803	10,529	8,739	11,493	12,561	12,753
3. Fisheries	993	831	537	606	719	782
4. Life +	109	139	212	218	262	267
5. Other Actions	38	41	51	53	75	73

Source: Authors analysis based on EU Budget 2010 Financial Report, Annex 2

Agricultural and rural development pre-accession schemes in Croatia

IPA is a flexible system that allows certain benefits also to third countries, provided that the basic objectives of the program are fulfilled - improvement of administrative capacity, strengthening of the judiciary, adoption of the EU acquis, or assistance in the preparation process for structural cohesion funds. It is also possible in potential candidate countries to use the funds for purposes similar to those contained in the objectives 3, 4 and 5 if they are not already funded from other sources and cannot fit into one of the first two objectives (European Commission, 2013a).

IPA component dedicated to supporting rural development (IPARD) is very different from the other parts of this program. It is the only one that is entirely dedicated to only one branch of the economy, agriculture, which is not surprising since agriculture occupies a special place in the whole policy of the Union. The main objective of this component is to support the candidate country to reach European standards in the entire field of agriculture. Emphasis is placed on the training of state administration to use funds earmarked for agriculture, but also on the preparation of final beneficiaries (farmers, food industry, merchants, etc.) in order to understand and implement the new rules and strict requirements that are prerequisite to the use of CAP funds at a later stage of the full membership of the Union.

Important indicator of successful adoption and implementation of European Union's standards and values is level of acceptance of agricultural and rural development support schemes in both new and future member countries. Research performed by Leibniz Institute of Agricultural Development in Central and Eastern Europe in 2008 and 2009 show that the best known measure among Croatian farmers is the direct payment scheme, with 93% of the all interviewed farmers who knew about this program. At the same time 59% of them had applied for funds from this source and only 6% had been rejected. Capital investment measure and income aid schemes are also known to farmers in Croatia, also in high percentage as direct payment, with 68% interviewed familiar with the first and 70% with income aid scheme (Moeller et al, 2009). Same as with direct payment scheme, majority of those who applied for one of mentioned aid schemes had been granted benefits through those programs. Level of awareness regarding rural development or SAPARD was lower – 49% of interviewed Croatian farmers were familiar with possibility to use SAPARD funds and only 39% knew about rural development scheme. Although relatively well informed, surveyed Croatian farmers considered EU agricultural aid programs in general not very useful, except direct payment scheme. Application process for mentioned aid measures was also evaluated and rated as complicated and not transparent. Not surprisingly, farmers who have applied for a program and benefited from aid measures gave significantly higher ratings compared to those who did not (Moeller et al, 2009).

Similar survey (Moeller et al, 2009) about agricultural policy measures has been performed in Slovenia, at the time already member state, and showed results not much different to Croatian. The awareness and knowledge about support schemes was higher: almost 90% of the farmers interviewed know about agriculture aid measures and 87% applied successfully for direct area payments. 58% of the surveyed households were granted aid by the direct animal payment scheme. None of the farmers who applied was rejected, but the smoothness of the application process was similarly rated by the Slovenian farmers as by the Croatian ones. The application process for direct area payments, which is the most adopted support scheme, was rated as rather difficult and Slovenian farmers generally rated the smoothness of the application process negatively.

In course of the same survey farmers have been asked to define which are, in their opinion, the most needed agricultural policy measures in their countries. In Croatia 26% - the highest share of surveyed farmers - mentioned that the current level of subsidies is too low. In Slovenia, the share of farmers who thinks like this is even bigger (55%). 25% of Croatian farmers consider policies regarding the stabilization of agricultural market to be very important and 8% of them finds that stabilization of producer prices should be important measure. 14% of the Slovenian farmers consider the latter to be important in their country.

Regarding IPA programs and funds the level of awareness among farmers in Croatia is high: 91% of the surveyed farmers are familiar with IPA, however, only 15% of interviewed is actually planning to apply for some form of pre-accession aid. Reasons for this relatively low interest in IPA were various – some farmers considered themselves as too old or their farms too small to use IPA measures, others felt that they are not sufficiently informed about all aspects and procedures of the program or that application process is too complicated for

them and some didn't have any plans for further investment at all. In evaluating overall level of knowledge about agricultural aid programs and general adoption of common European standards, it is useful to know that some answers were formulated having negative attitude towards EU in general, stating even that they have no trust in EU. This attitude is most probably result of not having enough information on the issue of IPA and other EU agriculture measures, so proper informing of interested parties in candidate countries should be important tool for preparing their citizens to EU accession.

Assistance for Croatian agriculture and rural development has been implemented through Rural Development component of the IPA framework. Main tasks were defined as:

- Contribution to sustainable modernization of agricultural sector through targeted investments;
- Encouraging improvement in areas of food safety, veterinary, environmental and other standards;
- Contribution to sustainable overall development of rural areas.

Simultaneously, National Agricultural and Fishery Strategy have been adopted. This Strategy set specific goals for agricultural sector in Croatia, aimed at improving competitiveness and efficiency of both primary production and processing industry, improving quality, hygiene and environmental standards and animal welfare. Additional employment in agriculture sector was also set as important goal, as well as improved standard of living in rural areas. In order to achieve cross-sector objectives and specific objectives defined for each sector, based on previous detailed analysis, various measures have been developed. In each priority one specific objective has been defined.

Table 3. IPARD program in Croatia - Specific objectives per priority

No.	Priority	Specific objective	Corresponding measure
1	Improving market efficiency and implementation of Community standards	Strengthening and improvement of the agricultural production and market capacity	Investments in agricultural holdings to restructure and upgrade to Community standards; Investments in the processing and marketing of agriculture and fishery products to restructure those activities and to upgrade them to Community standards
2	Preparatory actions for implementation of the Agri-environmental measures and local rural development strategies	Strengthening and improvement of the capacity for implementation of obligatory pilot project in Agri-environment and Leader based approach	Actions to improve the environment and the countryside; Preparation and implementation of local rural development strategies
3	Development of rural economy	Creating better living conditions in rural areas by improving rural infrastructures and promoting business activities	Improvement and development of rural infrastructure; Diversification and development of rural economic activities

Source: Directorate for Rural Development (2012)

Next to specific priority objectives (Table 3) additional to measures listed, supportive measures are to be applied, such as technical assistance and publicity campaigns. IPARD measures are coordinated and complemented with ones in Croatian National Agricultural and Fishery Strategy and other forms of government support to farmers, local authorities, associations and cooperatives.

Perspectives of IPA and IPARD in Serbia

Agriculture is important to the Serbian economy, but it is relatively small in European-wide terms. There is significant portion of rural population - estimated at about 3,5 million, or 47,6% of the total population, and 68% of small rural households identify agricultural activity as their only or main source of income (World Bank, 2000). At the same time Serbian land accounts for just 1,9% of the entire EU, and its total production amounts to 1,1% of EU agricultural output. In comparison with the 12 "new" member states, Serbia has 7% of their total land resources and only 4% of their exports. Serbia's only really significant agricultural products are raspberries, plums, and soybeans; maize accounts for about 11% and peppers for about 7% of European production (Delegation of the EU, 2013). Natural or technological conditions for agriculture production are not on the high level as the ones in developed countries, but within the European Union framework Serbia can achieve remarkable output and export performance (Antevski, 2012).

In the period 2007-2011, total of 33 contracts in pre-accession instruments scheme have been implemented in Serbia, and 82% of the available financing allocated to the agriculture and rural development sector has been contracted. Of this contracted amount, 57% has been disbursed up to the end of August 2012 (Delegation of the EU, 2013). In Table 4 the contract values and disbursements are shown.

Table 4. Contracted IPA assistance in Republic of Serbia 2007-2011

Programme Year	Number of Contracts	Contracted Amount (€)	Disbursed (to 31 Aug 2012)	% Disbursed
2007	6	4.636.471,26	3.873.582,56	83,5
2008	16	8.767.275,36	5.548.072,07	63,3
2009	5	3.316.683,04	1.598.159,32	48,2
2010	5	5.111.854,62	1.946.912,76	38,1
2011	2	2.000.000,00	640.000,00	32,0
Total	33	23.832.284,28	13.606.726,71	57,1

Source: Delegation of the EU, 2013

IPA assistance in Serbia was initially not aimed to be long term development mechanism, but more as starting tool that will enable beneficiaries – institutions and farmers - to continue in right direction. Late start and slow process of reforms together with overall situation in the country, further weakened by global economic crisis, showed that longer assistance will be required in order to reach full harmonization with EU standards and requirements in agriculture sector.

To be able to use the resources of these funds, Serbia must first establish the necessary institutional framework consisting of a general IPA framework, as well as management and control systems. The key parties involved in the delivery of the IPA assistance are EU Delegation to the Republic of Serbia, Serbian European Integration Office and the Ministry of Agriculture - Department for International Co-operation, including specialized IPA unit. To use the fifth component for rural development (IPARD), special operating structures are required: Managing Authority (MA) and IPARD Agency. The Managing Authority is responsible for writing the operational program, including the selection of measures. After approval and the start of its implementation, the MA evaluates indicators for following the implementation of the program. The MA is also responsible for the formation of the Monitoring Committee (MC), which monitors the implementation and efficiency of the program. It is responsible for coordinating functions of information and publicity, which means timely provision of all necessary information, not only to the public but also to potential beneficiaries of IPARD funds. The most significant institution in the use of these funds is the national IPARD Agency. Unlike other components of the IPA fund, within IPARD component the implementation of the projects is carried out without previous (ex-ante) checks by the EU bodies. Local IPARD agency is responsible for approval and control of obligations, payments and for accounting.

Conclusion

In course of past fifty years, European Union's CAP underwent many reforms, driven by both internal and external factors of economic, social or political nature. In the early years modifications were initiated mainly due to the negative effects common policy induced on Europe's economy, and later external factors, in first place global trade liberalization and strong international pressure against agricultural interventionism, became reasons for further CAP reforms. The current CAP reform is mainly motivated by internal community factors, including pressure on reducing the share in the EU budget, where expenditure on agriculture and rural development still have a substantial part. Besides agricultural budget, European Union must also support other important policies, and in time of economic recession, when many member states have huge public debt, this is not an easy task. Also external factors must be accounted for, some of them with potentially strong impact on European economy, like price volatility in agricultural markets, constantly increasing pressure on the environment preservation and processes of global trade liberalization. It looks like the next CAP reform, starting from year 2014, will be one of the most significant ever undertaken.

Expansion of the European Union, by joining the states of Eastern Europe (especially Romania and Bulgaria), and possibly of the Western Balkans where agriculture is significantly represented in the national economies, and which are lagging behind in almost all aspects of development of the "old" EU member states, represents an additional challenge to the makers of the EU agricultural policy. The importance of agriculture sector to the Serbian economy is great, because of Serbian agriculture is relatively small in European terms, but agriculture as a sector is major part of the requirements of the acquise communautaire and therefore has high importance on the Serbia road to EU accession. This sector has to address significant reforms to assume the obligations of country's perspective EU membership. In order to use

the resources of these funds, Serbia must first establish the necessary institutional framework consisting of a general IPA framework, as well as management and control systems.

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EVROPSKA ZAJEDNIČKA AGRARNA POLITIKA I PREDPRISTUPNE MERE POMOĆI ZA RURALNI RAZVOJ

Jelena Vapa Tankosić[3], Miroslav Stojsavljević[4]

Rezime

Zajednička agrarna politika Evropske unije predstavlja jedan od ključnih elemenata evropskog zajedništva i izuzetno značajnu oblast koja zauzima veliki udeo u ukupnom budžetu Unije. Ovaj rad istražuje funkcionisanje i reforme Zajedničke poljoprivredne politike Evropske unije, kao i potencijalne instrumente za pretpristupnu pomoć za unapređenje poljoprivrednog i ruralnog razvoja u zemljama kandidatima. Uspešno usvajanje i primena poljoprivrednih standarda i vrednosti Evropske unije u budućim zemljama članicama u velikoj meri zavisi od pravilne primene standarda i mehanizama neophodnih za korišćenje instrumenata pretpristupne pomoći. U ovom radu analizira se trenutna situacije u Republici Srbiji, kao zemlji kandidatu za pristupanje Evropskoj uniji, sa komparativnom analizom korišćenja instrumenata za pretpristupnu pomoć, u skladu sa iskustvom Republike Hrvatske iz perioda pre statusa punopravnog člana, i Republike Slovenije, kao države članice. Zaključak rada potvrdjuje hipoteze i ukazuje na neophodnost mnogobrojnih promena u strukturi i organizaciji agrarnog sektora Republike Srbije, kao i neophodnosti uspostavljanja institucionalnog okvira.

Ključne reči: *Zajednička agrarna politika, reforme, pretpristupna pomoć, evropska integracija.*

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INTERNATIONAL TREATY ON PLANT GENETIC RESOURCES FOR FOOD AND AGRICULTURE AS A BASIS FOR LIMITING INTELLECTUAL PROPERTY OF PLANT BREEDERS IN SERBIA

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Abstract

It is widely accepted that new plant varieties are protected as a form of intellectual property. Serbian legislation and international conventions protect new plant varieties, either through sui generis protection or by patent rights. However, International Treaty on Plant Genetic Resources for Food and Agriculture, also signed by Serbia, has endangered the rights of plant breeders in Serbia, because the greatest number of plant varieties in Serbia is not protected as intellectual property. On the other hand, the Treaty offers the possibility to natural and legal persons from other signatory countries to use new plant varieties of Serbian plant breeders. Seeing as the varieties are not protected, there is a possibility for the plant breeders' rights to be endangered. The goal of this paper is to try and consider the legal consequences, answering certain open questions regarding the protection of intellectual property in this field. A method of parallel comparison was used.

Key words: *international agreement, plant varieties, intellectual property, plant breeders, Serbia.*

JEL: *M43, 012*

Introduction

Creation of new plant varieties is a long and complex process which entails great effort, knowledge and financial investments. Such creation requires scientific knowledge in the field of genetics, plant breeding, molecular biology, biometrics, as well as a great experience and entire intellectual knowledge of the breeder who creates a new variety. In order for the

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breeders (or those enjoying such legal rights) to not remain without an adequate financial remuneration for the expenses incurred during the creation of new varieties, it is necessary for the new plant variety to be protected as intellectual property. This means that breeders, along with creating new plant varieties, must also work on their protection as intellectual property. Most often, it takes more than ten years of use of a new variety to compensate for the expenses for its creation and legal protection. If it is used without authorisation, the entire multidisciplinary results are brought into question.

Legal regulation of this field in Serbia was necessary from the aspect of the Serbian plant breeders, but also for the legal security of those abroad who might want to enter the Serbian market with their products. The most significant source of legal regulation of this field in Serbia is the Law on Protection of Breeders of Plant Varieties (LPBPV). An integral part of the Serbian legal system is also the International Convention on Protection of New Plant Varieties, passed by The International Union for Protection of New Plant Varieties (UPOV), ratified by the republic of Serbia in 2010, as well as the International Treaty on Plant Genetic Resources for Food and Agriculture, ratified in the early 2013. The Regulation of the European Council (REC) created a system for the protection of plant varieties as one and only form of industrial property rights for new plant varieties in the European Union, managed by The Community Plant Variety Office – CPVO. CPVO seat is in Angers, France.

The goal of this paper is to try and consider the legal consequences, answering certain open questions regarding the protection of intellectual property in this field.

Plant resources as a common concern of all countries

Apart from the fact that it is necessary to protect the plant breeders' rights and to enable them to enjoy the rights on national and international levels, there is a legal framework which limits those rights in certain cases. On a national level, the obligatory licence is a sort of state intervention in the plant breeder's right to freely manipulate and deal with a plant variety. The obligatory licence is defined by the Law on Protection of Plant Breeders' Rights (article. 31-35.) and can be issued by the competent minister if the holder of the plant breeder's rights refuses to yield the right to use the protected variety to other persons or makes unjustified demands for such use. On the international level, the most significant legal source on this matter is the International Treaty on Plant Genetic Resources for Food and Agriculture (Official gazette of the Republic of Serbia, International treaties, no. 1/13).

This treaty has only recently (2013) become an integral part of Serbian legislative, after it was ratified by the National Assembly of the Republic of Serbia. Serbia had previously not ratified it for many years, as it also entails certain negative consequences for the holders of rights to registered and unregistered plant varieties.

The motives for the elaboration of this international agreement should also be emphasized. Its preamble emphasizes a "special nature of plant genetic resources for food and agriculture, their distinctive features and problems needing distinctive solutions"(UPOV, Preamble). It underlines the "alarm by the continuing erosion of

these resources", pointing out that the plant genetic resources for food and agriculture are a common concern of all countries, seeing as all countries largely depend on plant genetic resources for food and agriculture that originate from another country. The contemporary world is being faced with huge issues in securing production of enough quantities of healthy safe food. It is thus explicitly stated that plant genetic resources must not be limited by country borders. The cited legal foundations for the passing of this Treaty are the goals of Rome Declaration on World Food Security and Action plan of the World Food Summit, as well as a sustainable agricultural development of the current and future generations, with the emphasis on "urgently strengthening the capacity of the developing countries and countries with transition economies for undertaking of such tasks" (UPOV Preamble). It is also emphasized that the global action plan of preservation and sustainable use of plant genetic resources for food and agriculture is an internationally confirmed framework of such activities.

One of the key provisions of the Preamble of this Treaty is "Affirming also that the rights recognized in this Treaty to save, use, exchange and sell farm-saved seed and other propagating material, and to participate in decision-making regarding, and in the fair and equitable sharing of the benefits arising from, the use of plant genetic resources for food and agriculture, are fundamental to the realization of Farmers' Rights, as well as the promotion of Farmers' Rights at national and international levels" (UPOV Preamble). The Preamble especially underlines the fact that the states, in realising their sovereign rights over their plant genetic resources for food and agriculture, might find use in creating an efficient multilateral system for facilitated access to a part of these resources that would be defined by agreements, as well as for a just and equal share of benefits arising from their use.

Already in the very Preamble of International Treaty on Plant and Genetic Resources for Food and Agriculture it can be seen that there is a "higher" interest above the right of the countries to protect their genetic resources for food and agriculture – the interest of availability of those resources to the rest of the humanity, especially the developing countries. It can be clearly understood that countries which generate the largest plant genetic resources regardless of the obligation to make them useful for their own people, also have a responsibility to other nations without such resources. Countries with large populations, especially African ones, do not have a significant potential for creating such resources, but, on the other hand, have greatest problems with feeding their population. From the ethical point of view, this international Treaty is fully justified.

Legal and economic consequences for Serbian agriculture owing to the implementation of International Treaty on plant genetic resources for food and agriculture

The crucial question is whether certain provisions of the International Treaty on Plant Genetic Resources for Food and Agriculture can be "legally" abused by large multinational companies, which can get hold of these resources, especially those unprotected as intellectual property. National interests of Serbia can be particularly brought into question, seeing as Serbian companies that deal in creating plant genetic resources are state-owned

and directly referred to by this Treaty, while almost all significant companies dealing in seed production abroad are private companies and have a special status in this Treaty. The contemporary world is being faced with huge issues in securing production of enough quantities of healthy safe food (Nešković, 2012). Apart from favourable conditions (land, climate, and so on), producers' traditional habits have to the greatest extent had an impact on the unjustifiably high presence of wheat and corn in the structure of crop production (Stevanović et al., 2012).

The question to be asked is whether it is accidental that this Treaty, existent since 2001, has been ratified by Serbia as late as twelve years afterwards. International Treaty on Plant Genetic Resources for Food and Agriculture was signable in the Food and Agriculture Organisation (FAO) of the United Nations, from November 3rd 2001 to 4th November 2002 for all FAO member countries and those which are not, but belong to the UN or any of its specialised agencies or International Atomic Energy Agency. Treaty is subject to ratification. The treaty enters into force on the ninetieth day after the deposit of the fortieth instrument of ratification, acceptance, approval or accession, provided that at least twenty instruments of ratification, acceptance, approval or accession have been deposited by Members of FAO. A special dilemma is whether everything has been done to prevent the possible harmful consequences of this Treaty. This is especially true when taking into account that Serbia has two Institutes which create new plant varieties and which are significant on a worldwide level, Institute of Field and Vegetable Crops from Novi Sad and Institute for Corn, Zemun Polje, Belgrade.

It is important that Serbia, with significant potentials of new plant varieties, can significantly contribute in the created system of multilateral exchange, according to the ratified Treaty. Thus, this Treaty will place significant burden of helping the undeveloped countries on Serbian plant breeders. The countries which are more developed than Serbia, having protected their plant varieties, are not in such position and are not threatened by endangering of protected intellectual property. The degree of the damage could be assessed depending on the number of Serbian plant varieties to be economically exploited without an adequate remuneration and the number of rights to plant varieties lost by Serbian breeders if some are falsely declared as breeders.

Numerous experts in this field, both the plant breeders and respectable lawyers acquainted with the circumstances in plant variety protection have indicated the potential problems that the ratification of the Treaty could cause. Most of them have suggested delaying the passing of the Law on Acceptance of International Treaty on Plant and Genetic Resources for Food and Agriculture for several years in order to leave time for the protection of domestic plant varieties. "Delay is necessary to pass and apply the regulations on founding of the National "bank" of genetic resources and define the conditions for a potential exchange of such resources"[4], as stated in the announcement of the Serbian Green party, which has experts in these topics, as well. All who share this attitude agree on the fact that a delay in such moment would have been a chance that should not have been missed,

4 "Zeleni Srbije za zaštitu domaćeg semena", „Zelena Srbija" http://www.rtv.rs/sr_lat/drustvo/zeleni-srbije:-zastitimo-domace-seme_367016.html

in order for the breeders of Serbian plant varieties to register and protect their seed with the Government's help. This would secure the right for further protection within the potential exchange, as well as a division of profit in the case of commercialisation by the participants of resource exchange. Unfortunately, the competent ministry and the Government had no understanding for such initiatives.

Serbia is seriously lagging behind in the sphere of protection of plant varieties, primarily due to wars and the crisis that ensued after 1990 and lasted more than a decade. During this period, other countries worked on creation and protection of new plant varieties. For most countries in the European Union the protection of new plant varieties started in 1996, when 1386 were protected. The trend of protection grew, so in 2008 the number of protected plant varieties reached 3012.[5] The creation of a plant variety and its protection is a significant investment. According to an analysis, for the creation of a variety of wheat in Czech Republic in 2002, about 2.5 million dollars were used. A certified wheat variety was sown on about 100,000 hectares there, while the same amount was sown with an uncertified wheat seed. If one considers that 20 USD is a yearly profit from a hectare sown with a certified seed, a total yearly sum of 200,000 USD is obtained. Hence, it takes twelve years for the invested resources to yield profit (Krehilk, 2003).

In the European Union and USA, the number of varieties submitted for protection is great. Special care about the protection of rights of plant breeders is taken in the USA. As an example, the number of protected varieties of cotton since 1970 can be used. Since 1980, the number of created and protected varieties has been parallel. This means that the number of unprotected sorts was negligible. The situation is similar with other plant varieties. The situation in Serbia is very different. The number of protected sorts is negligible.

The analysis of the most significant provisions of the Treaty indicates the provisions that could be questionable from the point of view of protection of the breeders of domestic plant varieties. Our starting points are three facts that are important for Serbian plant breeders. The first one is that in Serbia there is a significant number of plant breeders with their own national and commercial value and potential. Second, major plant breeders or holders of rights are national institutes and certain varieties, albeit new, are not adequately legally protected. Third, by adopting the international Treaty, an obligation is created for the plant breeders to make the varieties available under the conditions in the Treaty, not only to the developing countries, but also indirectly, to all multinational companies which might, taking into account what has previously been mentioned, "legally" abuse it.

An important question should be asked – why has Serbia ratified this Treaty before circumstances were made for the plant genetic resources to be protected. It is known that the protection of intellectual property is an expensive process and that several thousand plant varieties is not protected as intellectual property, although they are a fruit of effort of Serbian experts. Our institutes needed additional time and significant financial support in order to protect plant genetic resources.

5 UPOV publication, http://www.upov.int/export/sites/upov/en/documents/c/43/c_43_12.pdf

In the introductory part of the Treaty, its goal is emphasized and defined as "conservation and sustainable use of plant genetic resources for food and agriculture and the fair and equitable sharing of the benefits arising out of their use (UPOV), in harmony with the Convention on Biological Diversity, for sustainable agriculture and food security."

The contractual provisions of the Treaty oblige the signatory countries to "survey and inventory plant genetic resources for food and agriculture, taking into account the status and degree of variation in existing populations, including those that are of potential use and, as feasible, assess any threats to them" (UPOV, General Obligations, Article 5, Paragraph 1a). Obligatory duties on the national level were defined as: strengthening of international activity with the aim to promote preservation, evaluation, documentation, genetic strengthening, plant breeding, seed multiplication and sharing by enabling access and exchange in accordance with the Treaty on Plant Genetic Resources for Food and Agriculture of certain information and technology. What can be recognized here is the obligation of the Serbian breeders to enable access to plant varieties that are, unfortunately, not yet adequately legally protected.

In the article in which the multilateral system of access to and participation in sharing is covered, the starting principle is that "the Contracting Parties recognize the sovereign rights of States over their own plant genetic resources for food and agriculture, including that the authority to determine access to those resources rests with national governments and is subject to national legislation." (UPOV, Multilateral system of a access and benefit-sharing, article 10.) However, the next paragraph points out that "In the exercise of their sovereign rights, the Contracting Parties agree to establish a multilateral system, which is efficient, effective, and transparent, both to facilitate access to plant genetic resources for food and agriculture, and to share, in a fair and equitable way, the benefits" A Special annex (UPOV, Annex l of the Treaty) establishes the list of crops included in the multilateral system. The list contains all more significant crops, fodder, and grass. The most debatable part, from the aspect of national economy, is the provision which stipulates what plant genetic resources for food and agriculture the Treaty refers to, from the aspect of the right holder. Namely, it is emphasized that those are resources which are "under rule and control of signatory parties and public sector domain." The essential fact is that all significant resources in this field in Serbia are under the control of the state, in the public sector domain. This means that the domestic plant genetic resources have become, by means of ratification of this Treaty, available to users outside Serbia, not only to those who are in public sector and under the control of the state, but also to the public companies dealing with plant varieties and plant genetic resources in general. On the other hand, "other owners of plant and genetic resources" for food and agriculture, signatories of the Treaty are "obliged" to "include those plant and genetic resources for food and agriculture in the multilateral system (UPOV, Annex l, of the Treaty). In other words, the right bearers who own plant and genetic resources for food and agriculture and are under the control of the state must make those resources available to all signatory parties, while the companies which are not of such nature do not have to. In that case, they are merely encouraged to do so.

The Treaty defines the obligations of its signatories to take measures for facilitated access to plant genetic resources for food and agriculture and, in accordance with that, undertake legal or other necessary measures in order to secure such access to the others. It is stipulated that, with that purpose, such access is to be provided to "natural and legal persons under the Jurisdiction of any Contracting party" (UPOV, Article 12.3.). This practically means that Serbian institutes are obliged to provide access to their genetic resources for food and agriculture to any individual, regardless of whether that individual comes from Austria, USA, Russia or China. Apart from that, it is stipulated that such access must be granted "Access shall be accorded expeditiously, without the need to track individual accessions and free of charge, or, when a fee is charged, it shall not exceed the minimal cost involved" (UPOV, Article 12.3.b) This also entails that "all available passport data and, subject to applicable law, any other associated available non-confidential descriptive information, shall be made available with the plant genetic resources for food and agriculture provided" (UPOV, Article 12.3.c).

In the Article 12.3.d of the Treaty, it is stipulated that the recipients shall not claim any intellectual property or other rights that limit the facilitated access to the plant genetic resources for food and agriculture, or their genetic parts or components. This does not represent a special protection for genetic resources that are not protected, seeing as it is not possible to control the "fate" of the new varieties, which is especially true of corn, sunflower and such.

The contract does not directly refer to plant genetic resources protected by the intellectual and other property rights, so the Treaty states that access to them shall be "in accordance with the relevant international agreements and national laws."

Seeing as it is presumed that less than 1% of plant varieties/genetic resources in the field of agriculture in Serbia are protected by intellectual property rights, it becomes clear that these national resources have remained virtually unprotected. In developed western countries, plant genetic resources in this field are almost entirely protected.

Taking into account the aforementioned circumstances, one could ask what the possibilities to pull out of this Treaty are if it's harmful consequences to Serbian agriculture and food production are confirmed. The foreseen possibility is that "any Contracting Party may at any time after two years from the date on which this Treaty has entered into force for it, notify the Depositary in writing of its withdrawal from the Treaty" (UPOV, Withdrawals, Article 32.). However, withdrawal is valid one year from the date of acceptance of written notification. This practically means that if Serbia, taking into account its recent signing of the Treaty, would immediately file for withdrawal from the Treaty, that withdrawal would come into force only in three years' time. Two years until the date of coming into force of the Treaty for Serbia and one year from the date of receiving a written notification of withdrawal.

Naturally, until that time Serbia would be obliged to fulfil all obligations from the Treaty, so it is questionable what consequences the withdrawal would bring.

"Farmers' privileges" as an exception from the inviolability of interests of plant breeders

International Treaty on plant Genetic Resources for Food and Agriculture and International Convention on the Protection of new Plant Varieties can be a subject of comparison. If we presume that a plant variety is protected as intellectual property, it means that collectioner/ plant breeder has certain rights over the reproductive and harvested material of his varieties. To be true, other breeders are also given the right to use protected varieties for the development of the new ones, with no obligation whatsoever to the original breeder. This convention also foresees the so-called "farmers' privilege" stating that contracting parties can limit breeders' rights within sensible boundaries and with preservation of legal interests of the breeder in order to allow the agricultural producers to use (on their farms and in multiplication purposes) the harvested material of a protected sort obtained on their farms (farm-saved seed), (Šarac, 2006). "Farmers' privilege" is a legal possibility for the farmer to reuse the seed of the protected variety, although it was protected as intellectual property.

The Law on protection of plant varieties as well as the aforementioned Convention create a privilege and a legal precedent. Farmers are thus allowed to do something bypassing the basic rules of protection of varieties as intellectual property. However, as we have pointed out, the Convention guarantees certain exclusive rights on planting material, so the farmers are often forced to contractually bind not to use the seed produced on their farms for the next year's sowing. Thus, farmers are prevented from using the "farmers' privileges."

When it comes to the application of the "farmers' privilege" on the territory of the European Union, its legal foundation is the regulation EU 88/44/EC. According to the regulation, the farmers can freely use the seeds of protected varieties, while the product of plant material is unprotected. Farmers are, however, not allowed to resell patented seeds (Milošević, 2012).

Farmers' privileges can be completely abolished and, along with them, the use of farm-saved seed. It is possible that through the domination of the patent right doctrine the holder of intellectual property rights obtains an unlimited right to control all profit gained from a variety. This opens the question of whether in future there can be a discontinuation of possibility to use farm-saved seed in certain countries. There is a tendency for the next change of Convention for the Protection of New Varieties of Plants to include the prohibition or significant limitation of use of farm-saved seed. The legislative of certain countries has already regulated that. In theory, there will still remain an option for the farmers to make arrangements with various licence holders, which is not the case with patent protection. In practice, it is very probable that companies will not denounce their acquired rights to control all seed. That trend is going to grow, thus increasing the profit of companies (Milošević, 2012). The farmers' privilege is debatable, both from the legal and economical point of view. Namely, it remains an exception from the basic rule that property is inviolable, which includes the intellectual one, as well. On the other hand, the seed industry, represented by its owners, wish to control who produces seed as well as the seed market. Seeing as a significant part of the world production of food is still based on farm-saved seed (as the product of farmers' privileges), the seed industry works on creating a legal system which will limit, or even completely abolish, such use

(Milošević, 2012). It is done through World Trade Organisation, but also through bilateral trade agreements or direct lobbying of the governments. Governments of numerous countries already insist on being sent data on the quantity of seed multiplied at farms. It is the first step towards the restriction of use of seed of protected varieties at farms.

The most drastic example, which is in direct opposite with the spirit of the International Treaty on Plant and Genetic Resources for Food And Agriculture is the application of the so-called "terminator technology". It is not forbidden by the Convention for the Protection of New Varieties of Plants. More precisely, it is allowed as a form of protection of intellectual property. This technology foresees that genetic engineering is used to implant the plant with a mechanism that destroys the plant of the next generation. The company *Delta and Pene Land Co* was granted a US patent 5,723,765 in 1998 for the *Technology Protection System* (Radin, 1999). There are many opponents to the application of this technology. In this example, two key principles collide. The first one is the inviolability of all forms of property, including intellectual. The second principle is that plant genetic resources for food and agriculture are a common concern of all countries, seeing as all countries largely depend on plant genetic resources for food and agriculture which originate from another country. If the theory of this discrepancy is analysed, the question remains of the situation of plant variety breeders in Serbia. Not only do they not apply the so-called terminator technology, but have in a very small percentage protected the rights on new plant varieties as a form of intellectual property. In addition to that, according to the International Treaty on Plant Genetic Resources for Food and Agriculture, the mentioned plant varieties must be made available to every natural and legal person from any signatory country. It should be recalled that one of the strategic directions of the former federative state (Socialist Federative Republic of Yugoslavia) was the development of seed production and creation of own plant varieties. Only in the period between 1960 and 1997, the Yugoslav breeders have protected more than a thousand newly-created plant varieties, many of which are among the leading ones in the world according to quality and yield (Šarac, 2006). An interesting piece of data is that an initial gene fund of 58 collections with about 32.000 samples was created between 1982 and 1992, for the need of the national Bank of plant genes within the programme of protection of biodiversity and preservation of genetic resources (Kišgeci, 1997). The consequence of the dissolution of the former state was also the devastation of the domestic agricultural production and the decrease of investment in breeding of plant varieties. In recent years the state has improved, but, unfortunately, there are not enough resources for the protection of new plant varieties as intellectual property.

A very important warning comes from anti-globalists, whose criticisms are aimed primarily at multinational companies. Thus, according to Karen Lejman and Al Krebs, multinational companies are, for the first time, at the verge of taking control over genetic wealth of the planet through the global legal framework defined by the World Trade Organisation (Lejman et al., 2003). The same authors state that five hundred thousand Indian farmers demonstrated against GAT on October 2nd 1993, swearing to protect their right to produce and keep their seed. They made a charter of farmers' rights, among which the special place was occupied by the right to keep, reproduce and change the seed and the plant.

Division of benefits

Pertaining to this is also the question of participation in the division of benefits in the Multilateral System of Exchange of Plant Genetic Resources for Food and Agriculture. It is established by the Treaty that the benefits arising from use, including commercial one, of plant genetic resources for food and agriculture within the Multilateral System "shall be shared fairly and equitably through the following mechanisms: the exchange of information, access to and transfer of technology, capacity-building, and the sharing of the benefits arising from commercialization, taking into account the priority activity areas in the rolling Global Plan of Action, under the guidance of the Governing Body"(UPOV, Chapter: Benefit Sharing in the Multilateral System, Article 13.2). A good intention of the author of the Treaty could be recognised here. It could be confirmed by the fact that a so-called "mechanism" is formed with a special (trustee) account to receive and use financial resources, which will flow in in order to realise this agreement. This means that the recipient who commercialises a plant variety (plant genetical resource) transfers to that account "an equitable share of the benefits arising from the commercialization of that product."(UPOV, 13.2.d(ii). This obligation is inexistent or turns into a recommendation in the case that the product is available to others without limitations, for the purpose of further research and breeding, in which case the recipient who commercialises shall be encouraged to make such payment**.**

The Governing body defines, at the first meeting, a level, form and means of payment in accordance with the commercial practice. A framework is also defined, according to which the division within the multilateral system will be made according to the principle of resources being distributed primarily, directly and indirectly to agricultural producers in all countries. This particularly refers to developing countries and countries with a transition economy which preserve and use in a sustainable way the plant genetic resources for food and agriculture. From the point of view in Serbia, such attitude is debatable, in the least. Seeing as Serbia is mostly going to be the giver of plant genetic resources for food and agriculture in this exchange and taking into account the fact that it had no resources to protect its plant varieties as intellectual property, the question is whether resources should be made available for such purpose within the multilateral system. Considering the specific position of Serbia in this case, we do not see it as possible. However, one provision of the Treaty offers certain chances for that. Namely, the article 13.3. of the chapter on participation in benefit-sharing in the Multilateral system stipulates that "the Governing Body shall, at its first meeting, consider relevant policy and criteria for specific assistance under the agreed funding strategy established under the article on financial resources (UPOV, Article 18.) for the conservation of plant genetic resources for food and agriculture in developing countries, and countries with economies in transition whose contribution to the diversity of plant genetic resources for food and agriculture in the Multilateral System is significant and/or which have special needs." Our country would certainly have the possibility to "clarify" its special nature and "special needs" through a concretisation of this provision, taking into account its recent accession. This is primarily so because one should be led by the fact that the percentage of legal protection of plant varieties is very low, as well as that there is a large fund of quality plant varieties.

Access to ex situ collections, technologies and exchange of information

Apart from the fact that signatory countries are obliged by the provisions of the Treaty to enable access to their plant genetic resources, this act creates conditions to access *ex situ* collections. *Ex situ* collection denotes a collection of plant genetic resources for food and agriculture maintained away from its natural habitat.

The Treaty calls upon the international centres which keep the collections of plant genetic resources to make them available to the signatory parties of the Treaty. This primarily refers to the collections of plant resources for food and agriculture, safeguarded by the trustees – International Agricultural Research Centres (IARCs) and Consultative Group on International Agricultural Research (CGIAR). Plant genetic resources for food and agriculture must be made available in accordance with the provisions of the Treaty on material exchange, which is currently used in accordance with the agreement between International Agricultural Research Centres and Food and Agriculture Organisation of the UN.

It arises from this that Serbia can make its plant and genetic resources available on a twofold basis (from two collections). The first one is collections of domestic breeders in their own possession, the other is collections in International Agricultural Research Centres. If a plant breeder from Serbia submits a new plant variety for keeping to an International Agricultural Research Centre, the potential user can turn to either the breeder or the centre in order to obtain that plant variety.

The contracting parties are obliged to cooperate in developing and strengthening "to facilitate the exchange of information, based on existing information systems, on scientific, technical and environmental matters related to plant genetic resources for food and agriculture" (UPOV, Article 17). As a result of such exchange, it is expected that a significant contribution will be made to the sharing of benefits by making information on plant genetic resources for food and agriculture available to all Contracting Parties.

A part of the Treaty defines the access to not only the genetic material, but also the technology, as it is "Recognised that some technologies can only be transferred through genetic material" and stated that "the Contracting Parties shall provide and/or facilitate access to such technologies and genetic material. Access to these technologies, improved varieties and genetic material shall be provided and/or facilitated, while respecting applicable property rights and access laws, and in accordance with national capabilities." Access to and transfer of technologies, including those protected by intellectual property rights, was especially facilitated and for the least developed countries and countries with economy in transition.

Conclusion

By analysing the most important provisions of the International Treaty on Plant and Genetic Resources for Food and Agriculture it can be concluded that the application of a certain part of provisions could be legally and economically detrimental for Serbian plant breeders. The first

reason for this is that in Serbia there are breeders of plant varieties which are globally important and have their own commercial value and potential. Second, the most significant breeders of plant varieties, right bearers are the national institutes, while certain varieties, although they have conditions for that are not protected as intellectual property. By implementing the International Treaty, plant breeders are obliged, under the conditions of the Treaty, to enable access to plant resources not only to developing countries, but, indirectly, to all multinational companies that might "legally" abuse it. Thus, unequal contracting parties are put in an equal position, making Serbian plant breeders yield up everything, while breeders in developed countries do not have such obligations. Seeing as no reserves are allowed, this Treaty requires the assessment of possible activities that would help preserve the plant resources of Serbia as international resources.

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MEĐUNARODNI UGOVOR O BILJNIM GENETIČKIM RESURSIMA ZA HRANU I POLJOPRIVREDU KAO OSNOV ZA OGRANIČENJE INTELEKTUALNE SVOJINE OPLEMENJIVAČA U SRBIJI

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Sažetak

Opšte prihvaćena je zaštita novih biljnih sorti kao oblik intelektualne svojine. I domaće zakonodavstvo i međunarodne konvencije štite nove biljne sorte, bilo kroz sui generis zaštitu ili kao patentno pravo. Međutim, Međunarodni ugovor o biljnim genetičkim resursima za hranu i poljoprivredu, koji je prihvatila i Srbija ugrozio je prava oplemenjivača u Srbiji, zbog toga što najveći broj biljnih sorti u našoj zemlji nisu zaštićene kao intelektualna svojina. Sa druge strane Ugovor pruža mogućnost fizičkim i pravnim licima iz drugih zemalja potpisnica da koriste nove biljne sorte srpskih oplemenjivača. S obzirom da sorte nisu zaštićene postoji mogućnost ugrožavanja prava oplemenjivača. Cilj ovog rada je da pokuša da sagleda pravne posledice i da odgovore na pojedina otvorena pitanja koja se tiču zaštite intelektualne svojine u ovoj oblasti. Korišćen je uporedni metod.

Ključne reči: *međunarodni ugovor, biljne sorte, intelektualna svojina, oplemenjivači, Srbija.*

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ORGANISATIONAL MODELS IN AGRICULTURE WITH SPECIAL REFERENCE TO SMALL FARMERS

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Summary

Agricultural value chains can be understood as the systems of people, organizations and activities needed to create process and deliver agricultural products from producers to consumers. Over time and due to huge changes that have happened in the surroundings, agricultural value chains have become very integrated and complex. Small farmers can prosper by joining in modern higher-level agricultural value chains, but there are numerous obstacles, as well. The work presents the typology of organizational models for agricultural production that consists of the models organised by producers, agribusiness companies (processors, retail chains, and intermediaries), facilitators (governments, non-governmental organisations) and completely integrated models, established by some big companies. None of these models provides ideal solutions from the perspective of small producers. However, they say that the institutions, such as cooperatives and small farmers' organisations, present important mechanisms for including small producers in modern value chains and realizing the cooperation with agribusiness companies and other important players. This is also important for decision-makers and governmental bodies that should create a suitable environment and provide support so that small farmers and their organisations can integrate in modern value chains in a successful way.

Key words*: value chains, organisational models, agricultural production, small farmers*

JEL: *L23, Q13*

Introduction

Value chains in agriculture refer to the whole range of processes and participants included in moving agricultural products from farm to fork. Dramatic changes in business environment and trends in agribusiness influence all the participants included in agricultural value chains. Over time, agricultural value chains have increasingly become integrated and complex.

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Modern higher-level agricultural value chains seek to deliver inputs for agricultural production and processing, give rise to opportunities for semi-finished and further finished goods, contribute with higher income of the participants in these chains and serve the end users in a better way.

Agricultural producers are the starting point for the majority of agricultural value chains. Agribusiness companies (processors, wholesalers, retailers etc.) often prefer to do business with big agricultural producers for their sourcing. The challenge is to include and integrate small farmers in modern value chains as well. This requires traditional spot markets to be exchanged for coordinated trade-links between farmers, agribusiness companies and all other participants in value-chains. Besides, producers should be ready to provide agricultural products of a required quality and in a required quantity continuously.

In response to environmental challenges, different organisational models for integrating agricultural producers in value chains appeared. However, none of these models is ideal for small farmers and there is a concern that small producers can be excluded from modern value chains. These models emphasize the necessity of associating farmers. The institutions, such as cooperatives and farmers organisations and contract farming become the important mechanisms of linking producers with agribusiness companies, as well as the source of inputs, technology, information, services and credits. Cooperatives and farmers organisations can provide added value to agribusiness companies with a single contact point instead of many small fragmented farmers. From the perspective of smallholder farmers, the membership in cooperatives and farmers organisations offers numerous benefits and the possibility of inclusion in modern agricultural value chains.

Perceiving the problems inclusion of small farmers in higher-level value chains in literature, we concentrate on the following topics: value chains in agriculture, organisational models for agricultural production in value chains and the importance of cooperatives and farmers organisations. This is where the arguments we have considered come from. The methods used are those of analysis, synthesis and comparison. Selected studies are compared and summarized on the basis of the existing approaches and models.

Value chains in agriculture

The term "value chains" was initially suggested by Porter (1985) to depict how customer value accumulates along the activity chains that lead to end products or services. Porter describes the value chain as the internal processes or activities which a company performs "to design, produce, market, deliver and support its product." Shank and Govindarajan (1993) depict a value chain in broader terms looking at a company as the part of the overall value-creating processes. According to these authors, an industry value chain starts with the value-creating processes of a supplier who provides basic raw materials and components, continues with value-creating processes of different classes of buyers and sellers up to an end user and culminates further to the disposal and recycling of materials. According to Barnes (2004), the basic characteristic of a value chain is a market-focused collaboration; value chains allow businesses to respond to the marketplace connecting production, processing and marketing activities to market demands.

According to Miller and da Silva (2007), value chains present a set of participants (private, public and including service providers) and activity sequences that add value in bringing a product from production to end users. In agriculture and food sectors value chains can be thought of as a set of processes and flows from the inputs to production, processing, marketing and the consumer, popularly called the process from "farm to fork". Value chains in agriculture have always been in existence in a sense that farms that were producing and the final consumer accessed the produce, with the produce itself passing through multiple channels and participants (Srinivasan, 2012). Participants in agriculture value chain can be input companies, producers (farmers), processors, wholesalers, retailers, exporters, support service providers, financial organisations and other stakeholders. Value chains can be local, national and global, connecting rural producers with traders and consumers in local environment, throughout a country, region or the world.

Over the last few decades agricultural value chains, both in developed and in developing countries, have been buffeted by many changes due to the influence of numerous factors: globalization, liberalization, regulations change, government policies, technological development, progress in agricultural production, structural changes in trade, changes in market conditions, increasing export opportunities, urban population growth, the change of consumers' needs and expectations, socio-cultural effects, etc. Agricultural value chains are becoming more integrated and complex. According to Food and Agriculture Organization (2010), traditional agricultural value chains are governed through spot market transactions that include a great number of small producers and traders. Modern value chains are featured by vertical coordination, consolidation of the supply base, higher profits for the chain participants, agro-industrial processing and using standards along the chain. In literature, they are defined as developed, organised or higher-level value chains (Sjuaw-Koem-Fa, 2012; International Finance Corporation, 2012; Nagarajan et al., 2008). Anyhow, both traditional and modern systems include small farmers.

According to Miller and Jones (2010), there are generally five types of connections between buyers and sellers in agricultural value chains: 1) the instant or spot market, where producers sell their commodities themselves, wherein the prices fluctuate; 2) contract farming, i.e. agreement between producers and agribusiness organisation, government body or individual entrepreneur; 3) long-term and often informal relations (relation-based partnership) between the participants that are defined by trust and interdependence; 4) capital investments in production by a buyer that are defined by a high level of producer's credibility and dependency (capital investment-based partnership) and 5) vertically integrated company. The first type is typical of a traditional value chain and undeveloped markets and it is the most risky when it comes to setting market prices. In more developed higher-level value chains, contractual and partner structures where participants can respond to market needs in a more adequate ways and market principles can be better controlled are preferred.

Different activities of division of labour among the companies in a value chain are the subjects of governance. According to Gereffi et al. (2001), some companies in value chains directly or indirectly influence production, the organisation of production,

logistics and marketing systems. Governance includes: coordination within a value chain (inter-firm networks, quasi-hierarchical relations between lead firms and subordinated companies and a vertical integration within a company), power resources, governance structures and the ability of one firm to influence the activities of other firms in the chain. Trinekens (2011) emphasizes different governance forms in modern value chains: long-term contracts, joint ventures and vertical integration. Standardization is often used as a mechanism of coordination; also, coordination is facilitated by modern information and communication technologies.

Organisational models for agricultural production in value chains

Agricultural value chains allow businesses to respond to the marketplace by linking agricultural production, processing and marketing activities to market demands. The participants in agriculture value chains are increasingly becoming interdependent; market conditions and consumers' needs require from all participants in a value chain to work together and harmonize their activities. Although, all the participants in a value chain have a common interest, it is not easy to establish and maintain smooth working relations between them (Mangnus, Piters, 2010). This especially refers to adequate involvement of small farmers into a value chain. It is not easy to organise and stabilize agricultural value chains, especially in situation where there are a lot of small producers. The production and aggregation parts of value chains should be efficient for smallholder farmers so that they can have adequate returns (Srinivasan, 2012). According to Sjauw-Koem-Fa (2012) a real challenge is how small farmers can be connected in a market and integrated into the farm-to-fork value chains.

In majority of countries, smallholder farmers are dominant producers in agriculture, including Serbia. According to the census of agriculture in Serbia in 2102 (Statistical Office of the Republic of Serbia, 2013) Serbia has 631.552 agricultural holdings, out of which 628.552 family holdings and 3.000 legal entities and unincorporated enterprises. Family holdings have the share of 99.8% in land (1 – 10 ha), 99.2% from 10-50ha, i.e. 89.1% above 50ha.

Different buyers and sellers in value chains, including smallholder farmers, operate in a specific market context. Despite the development of value chains, there are still some agricultural producers that continue to market their goods through traditional informal channels and street markets. Although the possibilities for small farmers are increasing with value chains development, there are numerous barriers. According to Mangnus and Piters (2010), smallholder farmers do not have an easy access to important factors that are needed to deliver products in compliance with market needs. Smallholder farmers are faced with strong economic and other limitations. They are limited by difficult access to capital and bank loans, support services and agricultural inputs, they lack adequate technology and equipment, they have difficulties in delivering products of required quality and quantity. A special problem is the lack of adequate market information, knowledge and consulting. From the other hand, serious players in value chains (processors, wholesalers, retailers, exporters) request reliable producers – business partners that can respond to market requirements and deliver products at a reasonable price, in required quantity, delivery time and with required quality, consistently

over a long period of time. They can find that smallholder farmers cannot respond to their requirements, striving to make contracts with bigger producers that can deliver large volumes and food quality standards (Birthal, Joshi, 2007). In a market game the winners are those who can be better, i.e. those that can offer the products of better quality, in needed quantity, a lower price, fulfil quality standards of products and processes, possess sophisticated equipment, etc. (Paraušić et al., 2007).

As food production has become increasingly industrialized and globalized, both vertical and horizontal linkages are coordinated in a stronger way and organisational arrangements that appear are more complex (Cook et al., 2008). According to Vorley et al. (2009), agricultural production organisation becomes essential in overcoming costs, associated with a dispersion of agricultural producers, diseconomies of scales, by more difficult access to information, finances, technology, inconsistency in quantity and quality and issues in connection with traceability and risk management. The challenge for researchers is to categorize a great number of different situations and organisational arrangements that appear in practice. If the typology is considerably divided, we can lose sight of the coherence of similar organisational forms. Also, it should be comprehensive enough to refer to all relevant cases.

According to Vorley et al. (2009), different organisational models of agricultural production in a value chain can be divided into three categories:

1) *Producer-driven*. In this model drivers of organisation are small farmers themselves, farmer's organisations and cooperatives, as well as large scale farmers. Their focus is on selling. This includes identifying attractive markets, achieving higher market prices and stabilizing market position. The aims of large-scale farmers include extra supply volumes.
2) *Buyer-driven*. Here, the drivers of organisation are processors, retailers and exporters. These models require efficiency in a chain for the benefit of processing and retail. The main aim is to assure supply. The most used buyer-driven value chain model is contract farming.
3) *Intermediary-driven*. This model functions with chain intermediaries, with intention to be profitable in highly competitive, price-sensitive markets. Drivers in this model are traders, wholesalers and other market actors and the main goal is to supply more discerning customers. Beside commercial players in these model, governmental agencies as well as non-governmental organisations with strategic focus on regional development, i.e. focus on "make markets work for the poor" can act as drivers.

Sjauw-Koem-Fa (2012) modifies this categorisation suggesting four basic organisational models:

1) *Producer-driven*. Meaning the same as producer-driven in the previous one.
2) *Buyer-driven*. In contrast to the previous category, in buyer-driven model commercial chain intermediaries (traders, wholesalers etc.) are added as the actors. The strategic focus in this model is on buying-sourcing, i.e. ensuring the procurement of sufficient supplies in set deadlines and with the required quality. The rationale for this model is to assure supply, enhancing supply volumes, as well as to supply more discerning customers (meeting market niches and different needs).

3) *Facilitator-driven*. In this model, governmental agencies and non-governmental organisations are clearly distinguished as the drivers of organisation. This is expressed in situations with dual agricultural systems where, beside agribusiness players, there are smallholders to whom agriculture means rather a survival with a little surplus for sale or trade, then commercial production.

4) *Integrated*. This model is a special type of vertical integration that integrates numerous stakeholders into a value chain through the ownership and/or contractual relations. The drivers of organisation are lead firms, supermarkets or multinational companies. Their goals refer to new and higher market values, low prices for good quality or market monopoly.

These models are given in table 1.

Table 1. Organisational models for agriculture production in value chains

Sjauw-Koem-Fa (2012)	Driver of organisation	Vorley et al. (2009)
Producer-driven	Smallholder farmers themselves, cooperatives, farmers organisations	Producer-driven
	Large-scale farmers	
Buyer-driven	Processors	Buyer-driven
	Exporters	
	Retailers	
	Traders (local), wholesalers	Intermediary-driven
Facilitator-driven	NGOs and other support agencies	
	National and local governments	
Integrated	Lead firms	
	Supermarket chains	
	Multinational companies	

Source: Adapted from Vorley et al. (2009) and Sjauw-Koem-Fa (2012)

Small farmers and the importance of cooperatives and farming organisations

We are here mostly interested in small farmers. According to Vorley et al. (2009), despite numerous benefits, none of these models is superior for small farmers. For the participation of small farmers in dynamic and more profitable market segments their skill level, which includes capacities focused on market linkages, the increase of social capital and development of management abilities, should increase (Camacho et al., 2007).

For development of these skills, the key factors are: effective support services (managerial and others), effective enabling environment and making efficient alliances with chain actors (Vorley et al., 2009). According to Birthal and Joshi (2007), for smallholder farmers to benefit from increasing market possibilities, close linkages between farmers and different stakeholders in value chains are necessary to coordinate supply and demand. Institutions like cooperatives, farmer's organisations and contract farming can help creation of such links.

In *producer-driven* value chain models, agricultural cooperatives and other farmer-based organisations strive to establish direct links with end markets and they seem as development drivers of a value chain. A cooperative is defined as a business operated primarily to provide benefits to members through marketing transactions and through the distribution of earnings from these transactions (Coltrain et al., 2000). Farmer's organisations are more flexible forms of associating farmers than cooperatives. They can be considerably different, more or less formal, but also have certain benefits for their members (Dorward, Kachule, 2005). In defining cooperatives and farmers organisations, three basic principles developed from Dunn (1988) are used:

1. The User-Owner Principle. This principle tells us that those who own and finance the cooperative are the ones who use the cooperative.
2. The User-Control Principle. According to this principle, those who control the cooperative are the ones who use the cooperative.
3. The User-Benefits Principle. The third principle says that the aim of a cooperative is to provide and distribute benefits to its users on the basis of their use.

According to Conell (1999), cooperatives may be the clearest example of collective entrepreneurship. They are, by definition, a collective effort. Cooperatives correspond to the logic of collective action. First, cooperatives are privileged groups: it is expected that the net benefit to at least one individual is positive. Second, convention may also play a role in keeping cooperatives functioning. According to Vorley et al. (2009), collective action is an important strategy to increase small farmer participation in emerging modern markets and to create sustained commercial flows of high-quality products.

In buyer-driven models, the drivers (processors, retailers, exporters, etc.) strive to avoid the addiction of traditional wholesale markets in the pursuit of value and product assurance, although one of the reasons for such models development is the lack of collective action of producers (Sjuaw-Koem-Fa). The most frequent option of the buyer-driven model, contract farming, is in expansion in the world (International Institute for the Unification of Private Law, 2013) as a way to organise and connect production capacities and market needs, to enhance the product range and to diversify it in local, regional and global markets, as well as to improve a value chain efficiency.

According to Food and Agriculture Organization (2001), contract farming has numerous benefits for small farmers: inputs and production services are often supplied by the investor, this is usually done on credit through advances from the investor, the price risk is reduced since many contracts specify the price in advance and contract farming opens new markets that would otherwise be unavailable to small farmers. It also provides new technologies introduction and mastering new skills. However, contract farming can be also seen as partnerships of uneven partners where there is always some space for exploitation of the weaker party – small farmers. Also, investors can have risks and difficulties in getting smallholders to comply with standard requirements and to fulfil commitments (Elbehri, 2013).

Organisational models analysis for agricultural production in value chains emphasizes the role of cooperatives and farmers organisations. Cooperative organising proved itself to be a sustainable, accepted and the successful type of agricultural production development, the way of entering and survival in a market, the penetration of capital in small farmers activities, as well as differentiation and individual enhancement of some of them (Maričić, 2009). The primary goal of all cooperatives is the benefit of their members, so that they can improve their economic, social and cultural position. Agricultural cooperatives offer benefits of collective power, help the increase of income of their members and enhance negotiating power. According to other participants in a value chain, they provide important services, a wider market for their products, as well as by achieving better prices for farmers, help them acquire better entrepreneurial and marketing skills, etc. Beside the benefits for their members – farmers, cooperatives provide other benefits to local (rural) community and consumers (Rodriguez, 2011; Food and Agriculture Organization, 2012). Also, farmer's organisations do not exclusively cover directly measurable economic returns, but also a social capital and community development (Dorward, Kachule, 2005).

Cooperatives and contract farming are not are not mutually exclusive. Negotiating power of cooperatives is bigger than the power of individuals (unless if the question is about big farms of a single owner). Agribusiness companies may prefer cooperatives since group liabilities for credits provide the reduction of lending risks while the economy of scale can make transactional costs smaller (Coutler et al., 1999).

According to Bijman et al. (2012), the position of cooperation in a value chain refers to the competitiveness of cooperatives in relation to other participants, such as processors, wholesalers and retailers, as well as the strategy which a cooperative formulates when choosing its position in a value chain. Beside the position in a value chain, the performance of a cooperative is influenced by internal governance and institutional environment. Internal governance refers to decision-making processes adopted, the role of the different governing bodies, the deployment of control rights to members and professional management, and issues such as the organisational structure of the cooperative enterprise, including the formation of holdings and subsidiaries. Institutional environment refers to social, cultural, political and legal contexts in which a cooperative functions and that can have both positive and negative effects on motivation for starting up and joining cooperatives as well as on cooperatives' performance.

According to Chaddad (2006), cooperatives can be organised in a multi-layered fashion which is designated as a federated structure. In such structures, patrons are the members of a local cooperative that is a member of a regional cooperative. Regional cooperatives can also join and form national or interregional cooperatives. Also, there are international cooperatives. In this way, federal structure enhances the power of local cooperatives considerably as well as the position in value chains.

Cooperatives and farmers organisations are one of the essential mechanisms for including small farmers in organised value chains. They are formed with the motivation of common benefits and expectation of collective action among the members (Hong, Sporleder, 2007). Farmers should recognize that they solve their problems or take advantage of an opportunity together, instead of trying to do this individually. However, this does not mean that cooperatives and farmers organisations will be a certain success, although they offer benefits of collective powers. Many cooperatives and farmers organisations with economic and market targets have bad results due to some internal factors: internal governance, leadership, members, management, training and education, technology etc. as well as some external factors: weak/difficult links in a value chain with input suppliers, agribusiness partners, finance/credit institutions, credit burden and debtors, the lack of support from public institutions, etc. (Garnevska et al., 2011; Elbehri, 2013).

Legal environment and governmental policy are one of the key factors of success (Garnevska et al., 2011). According to Cvijanović et al. the institutional barriers (inefficient legislation and justice system) limit small farmers in developing forms of association that give the best results. In the research of cooperatives that was carried out by Zakić et al. (2013) in Serbia, the perception of the members of cooperatives is such, that in a high percent they think that the cooperatives in Serbia are neglected and that the state does not support their development. Although, according to Laidlaw (1980), a state should never dominate, direct and try to manage cooperatives. It has to encourage, support and sometimes provide cooperatives with financial help. The state should have a supporting role, encouraging inclusion of smallholders. Governments, according to Birthal and Joshi (2007), should facilitate the up scaling of cooperatives and farmers organisations by demonstrating the benefits of these institutions to small farmers and their inclusion in modern higher level value chains.

Conclusion

The full usage of agricultural potential is possible if small producers are linked to markets in a way that they can realise bigger income and other benefits. The value chain approach offers good possibilities for small farmers to be included in modern higher-level value chains instead of traditional spot-markets. However, small farmers are faced with numerous obstacles in accessing all the factors that are needed for the delivery of agricultural products that comply with market requirements. Although, small farmers and companies included in agribusiness (and a society in general), can prosper by integrating small farmers in modern value chains, the challenges of realising collaboration of agribusiness with small farmers is overcoming different obstacles faced by small farmers (from obtaining raw materials to the access to finances and technology improvement), the reliability of partnerships with small farmers so that they could respond to different market needs, provide the achievement of the required quality standards and deliver agricultural products in required quantity, within the set time limits and continuity.

In response to environmental challenges, different organisational models for agricultural production have evolved. These models can be organised by the very producers, companies that are end customers or intermediaries (traders, wholesalers, exporters), organisations

that assist the integration of smallholders into value chains (government agencies, non-governmental organisations) or the question is about completely integrated models in which the driver is a big company (for example a supermarket chain). Although, none of these models is completely suitable for small farmers, the models emphasize that the possibilities for cooperation between small farmers and agribusiness companies and the inclusion of small farmers in modern value chains grow if small farmers come together in cooperatives and producer organisations. These institutions provide the inclusion of small farmers in organised value chains and the realisation of numerous benefits for their members and local community, while at the same time, enable agribusiness companies to meet their requests. The creation and successful operation of these organisations depend on many internal and external factors, including governmental policy as a very important factor of success. Policy decision makers are of central importance in the policy environment creation and providing support in order to make the integration of small farmers into modern agricultural value chains easier.

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ORGANIZACIONI MODELI U POLJOPRIVREDI SA POSEBNIM OSVRTOM NA MALE POLJOPRIVREDNIKE

Nebojša Zakić[4], Svetlana Vukotić[5], Drago Cvijanović[6]

Rezime

Lanci vrednosti u poljoprivredi mogu biti shvaćeni kao sistemi ljudi, organizacija i aktivnosti potrebni da se kreiraju, obrade i isporuče poljoprivredni proizvodi od proizvođača to potrošača. Tokom vremena, usled velikih promena koje su se dešavale u okruženju, poljoprivredni lanci vrednosti su postali vrlo integrisani i kompleksni. Mali poljoprivrednici mogu prosperirati od uključenja u savremene poljoprivredne lance vrednosti višeg nivoa ali postoje brojne prepreke. U radu se daje tipologija organizacionih modela za poljoprivredenu proizvodnju koju čine modeli organizovani od strane proizvođača, kompanija u agrobiznisu (prerađivači, maloprodajni lanci, posrednici), facilitatora (vlada, nevladine organizacije) i potpuno integrisani modeli uspostavljeni od strane neke velike kompanije. Nijedan od ovih modela ne daje idealna rešenja sa stanovišta malih proizvođača. Međutim oni govore da institucije kao što su zadruge i organizacije malih poljoprivrednika su važni mehanizmi za uključenje malih proizvođača u savremene lance vrednosti i ostvarenje saradnje sa kompanijama u agro biznisu i drugim važnim igračima. Ovo je važno i za donosioce odluka i vladine organe koji treba da kreiraju odgovarajuće okruženje i pruže podršku kako bi se mali poljoprivrednici i njihove organizacije uspešno integrisali u savremene lance vrednosti.

***Ključne reči**: lanci vrednosti, organizacioni modeli, poljoprivredna proizvodnja, mali poljoprivrednici*

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ZAPISNIK

sa VI (šeste) sednice Skupštine NAUČNOG DRUŠTVA AGRARNIH EKONOMISTA BALKANA održane 07.12.2013. u Topoli (na Skupštini je prisustvovalo 92 člana)

Sednicu Skupštine NDAEB je otvorio predsednik Društva, prof. dr Radovan Pejanović, koji je predložio sledeći dnevni red:

1. Izbor radnih tela skupštine (predsedništva, zapisničara i overivača zapisnika).
2. Izveštaj o radu NDAEB-a u 2013. godini.
3. Plan aktivnosti NDAEB-a za 2014. godinu.
4. Obeležavanje 60. godina od osnivanja časopisa Ekonomika poljoprivrede.
5. Razno.

Ad-1.

1.1. Za članove radnog predsedništva Skupštine NDAEB-a, predloženi su:

Prof. dr Radovan Pejanović, Srbija, predsednik;
Prof. dr Drago Cvijanović, Srbija;
Prof. dr Aleksandra Despotović, Crna Gora;
Doc. dr Dejan Janković, Srbija;
Prof. dr Stanislav Zekić, Srbija;
Prof. dr Masahiko Gemma, Japan;
Dr Carolina Constantin, Rumunija;
Prof. dr Mile Peševski, Makedonija.

1.2. Za zapisničare Skupštine NDAEB-a, predloženi su:

- *Mr Marijana Jovanović;*
- *Mr Mirela Tomaš Simin.*

1.3. Za overivače zapisnika Skupštine NDAEB-a, predloženi su:

- *Dr Danica Mićanović;*
- *Dr Branko Mihailović.*

Ad-2.

2.1. Izveštaj o radu NDAEB-a u 2013. godini

Predsednik Nučnog društva agrarnih ekonomista Balkana prof. dr Radovan Pejanović podneo je izveštaj o radu Društva. Izveštaj se odnosi na period od Skupštine

NDAEB-a, koja je održana 08.12.2012. godine, na Tari, pa do Skupštine koja je održana 07.12.2013. godine, u Topoli.

U toku 2013. godine, urađeno je sledeće:

- Zbog promene Zakona, Ministarstvo prosvete, nauke i tehnološkog razvoja Vlade Republike Srbije, naložilo je otvaranje računa u trezoru za NDAEB, što je i učinjeno.
- Časopis Ekonomika poljoprivrede je i dalje na nivou međunarodnog časopisa M-24. Časopis je upisan u deset baza podataka: **EBSCO, AgEcon Search, Index Copernicus Journals Master List (ICV2012:5,12), Social Science Research Network (SSRN), ProQuest, Ulrich`s Periodicals Directory, CABI, J-Gate, The World Wide Web Virtual Library for European Integration i SCIndeks.**
- **Časopis Ekonomika poljoprivrede ispunio je sve uslove i apliciraće za indeksaciju ka Thomson Reuters listi naučnih časopisa. Shodno tome, zatražili smo i dobili podršku sledećih deset uvaženih stručnjaka iz celog sveta:**

Prof. dr Vincent Dolle, direktor, Mediteranski agronomski institut Montpelje (IAMM-CIHEAM), Monpelje, Francuska.

Dr Tomas Doucha, Institut za ekonomiku poljoprivrede i informacije, Prag, Češka Republika.

Prof. dr Masahiko Gemma, Waseda univerzitet, Tokio, Japan.

Prof. dr Wim Heijman, Wageningen univerzitet, Wageningen, Holandija.

Prof. dr Andrzej Kowalski, direktor, Institut za ekonomiku poljoprivrede i prehrambene industrije, Varšava, Poljska.

Prof. dr Alan Randall, Fakultet za poljoprivredu, prehrambenu industriju i prirodne resurse, Univerzitet u Sidneju, Australija.

Prof. dr Kenneth Thomson, Univerzitet u Aberdinu, Škotska.

Dr Klaus Wagner, direktor, Federalni institut za ekonomiku poljoprivrede, Beč, Austrija.

Prof. dr Ivan Atanov, prorektor, Poljoprivredni univerzitet Stavropolj, Rusija.

Prof. dr Eirik Romstad, Norveški univerzitet životnih nauka, As, Norveška.

- Časopis Ekonomika poljoprivrede je upisan u CIP katalogizaciju, kako za štampano, tako i za elktronsko izdanje.
- **Urađen je web sajt časopisa Ekonomika poljoprivrede (**www.ea.bg.ac.rs**) i izvršena je priprema za konkurisanje za Reuters listu.**
- U 2013. godini, (do sada) su objavljena 3 (tri) redovna broja časopisa Ekonomika poljoprivrede, četvrti redovni broj je u pripremi i izlazi do kraja ove godine. U prvom broju objavljeno je 15 radova (13 radova domaćih autora i 2 rada stranih autora). U drugom broju objavljeno je 16 radova (12 radova domaćih autora i 4 rada stranih autora). U trećem broju objavljeno je 17 radova (12 radova domaćih autora i 5 radova stranih autora). U četvrtom broju pripremljeno je za objavljivanje 17 radova (12 radova domaćih autora i 5 radova stranih autora).

- NDAEB-a je i dalje suizdavač časopisa „Tranzicija“.
- NDAEB-a je izdavač monografija: dr Vukašin Ilić, dr Saša Stevanović (2012): *Agrobiznis* – šansa *Srbije*, NDAEB, Beograd; i prof. dr Radovan Pejanović, prof. dr Zoran Njegovan, doc. dr Goran Maksimović (2013): *Ekonomika poljoprivrede, agrarna politika, ruralni razvoj*, NDAEB, Beograd.
- NDAEB-a bilo je suorganizator nekoliko međunarodnih naučnih skupova i to:

Četvrti *međunarodni naučni simpozijum "Agrosym Jahorina 2013",* 03-06. oktobar 2013. godine, Jahorina, Republika Srpska.

Međunarodni naučni skup „Održiva poljoprivreda i ruralni razvoj u funkciji ostvarivanja strateških ciljeva Republike Srbije u okviru dunavskog regiona – dostizanje regionale konkurentnosti", 05-07. decembar 2012. godine, hotel „Oplenac“ Topola, Srbija.

Ad-3.

3.1.Plan rada za 2014. godinu

- Da se po potrebi, a u granicama finansijskih sredstava, održavaju sastanci Predsedništva NDAEB-a;
- Za hitne odluke, važiće mogućnost donošenja odluka telefonski ili E-mejlom, što će biti potvrđeno na prvom narednom sastanku Predsedništva NDAEB-a;
- Četiri redovna broja časopisa EP će se publikovati na engleskom jeziku (pokušaće se izaći na SCI listu);
- Organizovanje naučnih i stručnih skupova;
- Dalje izdavanje monografija;
- Uraditi Bibliografiju radova koji su objavljeni u Ekonomici poljoprivrede od 2005. do 2013. godine;
- Jačanje naučne uticajnosti časopisa.

Ad-4.

4.1. Obeležavanje 60. godina od osnivanja časopisa Ekonomika poljoprivrede

Povodom šezdeset godina neprekidnog izlaženja časopisa Ekonomika poljoprivrede urađene su prigodne zahvalnice, koje su i uručene na redovnoj Skupštini NDAEB-a u Topoli (07.12.2013. godine) za sledeće koleginice i kolege:

- Prof. dr Radovan Pejanović, predsednik NDAEB-a,
- Prof. dr Milan Milanović, glavni i odgovorni urednik Ekonomike poljoprivrede u periodu 2002.–2011. godina,
- Dr Simo Stevanović, vanredni profesor Poljoprivrednog fakulteta Univerziteta u Beogradu,
- Dr Dragić Živković, redovni profesor Poljoprivrednog fakulteta Univerziteta u Beogradu,
- Dr Zoran Njegovan, redovni profesor Poljoprivrednog fakulteta Univerziteta u Novom Sadu,
- Dr Branko Krstić, redovni profesor u penziji Poljoprivrednog fakulteta Univerziteta

u Beogradu,
- Dr Milutin Đorović, redovni profesor u penziji Poljoprivrednog fakulteta Univerziteta u Beogradu,
- Dr Desanka Božidarević, redovni profesor u penziji Poljoprivrednog fakulteta Univerziteta u Novom Sadu,
- Dr Jan Marko, redovni profesor u penziji Poljoprivrednog fakulteta Univerziteta u Novom Sadu,
- Dr Milenko Jovanović, redovni profesor u penziji Poljoprivrednog fakulteta Univerziteta u Novom Sadu,
- Dr Koviljko Lovre, redovni profesor Ekonomskog fakulteta Univerziteta u Novom Sadu,
- **Dr Đojo Arsenović, redovni profesor Poljoprivrednog fakulteta Univerziteta u Istočnom Sarajevu, Republika Srpska, BiH (posthumno),**
- Prof. dr Stevo Mirjanić, ministar poljoprivrede, šumarstva i vodoprivrede Republike Srpske, Banja Luka, Republika Srpska, BiH,
- Dr Žarko Kalezić, naučni savjetnik u penziji Biotehničkog fakulteta Univerziteta u Podgorici, Republika Crna Gora,
- Dr Bogdan Bulatović, naučni savjetnik Biotehničkog fakulteta Univerziteta u Podgorici, Republika Crna Gora,
- Victor Manole, Ph.D., Full Professor in retirement, Faculty of Agro-Food and Environmental Economics, Bucharest University of Economic Studies, Bucharest, Romania,
- Professor Nicolae Istudor, Ph.D., Vice-rector of the Bucharest Academy of Economic Studies, Bucharest, Romania,
- Andrei Jean Vasile, Ph.D., Educational Director and jr. teaching assistant, Petroleum and Gas University of Ploiesti, Economics and Business Administration Department, Ploiesti, Prahova, Romania,
- Marko Ivanković, Ph.D., Director of the Federal Agro-Mediterranean Institute of Mostar, Mostar, BiH,
- Ferhat Ćejvanović, Ph.D., Assistant Professor, Faculty of Economics, University in Tuzla, Tuzla, BiH,
- Mile Peševski, Ph.D., Full Professor, Faculty of Agricultural Sciences and Food, Skopje, Macedonia,
- Boris Anakiev, Ph.D., Full Professor in retirement, Faculty of Agricultural Sciences and Food, Skopje, Macedonia.

Ad-5. Razno

5.1. Prezentacija knjiga

Prezentovana su sledeća izdanja:

- Radovan Pejanović, Zoran Njegovan, Goran Maksimović (2013): *Ekonomika poljoprivrede, agrarna politika, ruralni razvoj*, NDAEB, Beograd.
- Boško Vojinović, Drago Cvijanović, Barbara Rodica (2013): *Faktori regionalnog i lokalnog ekonomskog razvoja*, Institut za ekonomiku poljopivrede, Beograd.

- Vidoje Stefanović, Drago Cvijanović, Boško Vojinović (2013): *Ekonomska efektivnost u upravljanju ljudskim resursima*, Institut za ekonomiku poljopivrede, Beograd.
- Gorica Cvijanović, Gordana Dozet, Drago Cvijanović (2013): *Menadžment u organskoj poljoprivredi*, Institut za ekonomiku poljopivrede, Beograd.
- Miloje Stoiljković, Drago Cvijanović, Boško Vojinović (2013): *Menadžment zadovoljstvom i motivacijom u zdravstvenim ustanovama*, Institut za ekonomiku poljopivrede, Beograd.

U Beogradu, 07.12.2013. godine.

Zapisničari:

- *Mr Marijana Jovanović;*
- *Mr Mirela Tomaš Simin.*

Overivači zapisnika:

- *Dr Danica Mićanović*;
- *Dr Branko Mihailović.*

Monograph Review:

AGRI-FOOD SECTOR IN SERBIA

Publisher:
Serbian Academy of Sciences and Arts - Board for Village
and Serbian Association of Agricultural Economists, Belgrade, 2013.

Editor:
Dragan Škorić, Danilo Tomić and Vesna Popović

The Serbian Academy of Sciences and Arts - Board for Village and Serbian Association of Agricultural Economists has recently published in English language the monograph under the title ***AGRI-FOOD SECTOR IN SERBIA – State and Challenges***.

The Serbian economy and agri-food sector at the beginning of the 21st century is in the process of late transition. This process is influenced by international globalisation, trade liberalisation, following by development of information technology and biotechnology. What is the current situation and what are the main challenges for Serbian agriculture was discussed by 15 eminent Serbian agricultural economists. A total of nine papers are presented dealing with four topics:

- **Structural Characteristics:** Agriculture of the Western Balkan Countries in Globalisation and Liberalisation Processes; Changes in the Structure of Farms and Producers Associations in the Republic of Serbia; Development Characteristics of Agricultural Sector in the Republic of Serbia; Diffusion of Knowledge and Innovation in Serbian Agriculture;
- **Production and Trade**: Long-Term Structural Changes in Agrarian Market in Serbia (1990-2010): Cyclicality of Production, Demand, Extensive Growth of Export; Foreign Trade Exchange of Agro industrial Products of Serbia;
- **Natural Resources and Rural Development:** Sustainable Management of Land, Water and Biodiversity in Agriculture under Climate Change; Territorial Capital of Rural Areas - an Example of Analysis of the Potential for Rural Tourism Development in Serbia;
- **Institutional Framework and Policy of Support:** Policy of Support to Agriculture and Rural Development.

In the paper *Agriculture of the Western Balkan Countries in Globalisation and Liberalisation Processes* authors deal with the current development and competitiveness of the Western Balkan Countries. The paper analyses the economic development indicators, resource potential and value indicators of agricultural development.

In the second paper *Changes in the Structure of Farms and Producers Associations in the Republic of Serbia* authors analyse structural changes of four forms of farms – family farms, agricultural enterprises, agricultural cooperatives and other legal entities and entrepreneurs in the period between the two Censuses, 2002 and 2012. In addition to quantitative indicators – number of farms, growth index, and share indicators and macro-regional comparisons, a special emphasis is placed on organisation issues.

The paper *Development Characteristics of Agricultural Sector in Serbia* describes agricultural production and production in agro-industry. Moreover, export performances of the sector, in the period 2005 - 2011, were described. The export performances are analysed through the value of agricultural exports with regard to hired labour and land in agricultural production. The relationship trends between agricultural and non-agricultural sectors are highly emphasized.

Diffusion of Knowledge and Innovation in Serbian Agriculture deals with characteristics of the stakeholders within the agricultural knowledge and information system in Serbia. Special attention has been paid to the role of R&D in agricultural sciences, as well as social vitality of the family farms and characteristics of agricultural extension service as relevant factors in the process of agricultural knowledge and innovation diffusion.

In the paper *Long-Term Structural Changes in Agrarian Market in Serbia (1990-2010): Cyclicality of Production, Demand, Extensive Growth of Export*, authors analyse the trends in production of agricultural products in Serbia. The dynamics of the agrarian development are characterized by cyclical instability, with significant differences with respect to the intensity and direction of oscillation between plant and livestock production. The agrarian market is unorganized with an underdeveloped competition policy and with broken vertical chain after privatisation process.

In the paper *Foreign Trade Exchange of Agro industrial Products of Serbia* the authors present comparative analysis of trends and regional determinants of the agro-industrial products' export and import in the Republic of Serbia during the period 2004-2011, as well as the analysis of foreign trade balances of exchange according to commodity groups and sectors. Export recorded a significant increase under the average rate of 18.66% per annum. The highest value of export is directed to the EU, some 47.30% of the total agricultural export, while to the CEFTA approximately some 45%. The analysis per countries shows that the largest export is directed to the countries of ex-Yugoslavia, namely Bosnia and Herzegovina, Montenegro and Macedonia, followed by Germany and Italy. Import has recorded growth on the average of 7.8% annually. The most important import market is the EU, with 41.9% of the agricultural import and CEFTA with 19.2%. Republic of Serbia recorded a positive balance of foreign trade.

The paper *Sustainable Management of Land, Water and Biodiversity in Agriculture under Climate Change* deals with natural resources. It is shown that in the Republic of Serbia there is delay in by-low adoption, lack of national strategic documents in agricultural and climate policy and low development level of local institutional infrastructure and financial bottlenecks. The conclusion is that it is necessary to intensify the state

institutional and financial support and to provide a more comprehensive and export assistance to the farmers both by the science and advisory institutions in activities aiming at the conservation of natural resources in the conditions of climate changes.

The paper with the title *Territorial Capital of Rural Areas – an Example of Analysis of the Potential for Rural Tourism Development in Serbia* shows different aspects of territorial capital in rural areas of Serbia in the context of these areas' potentials for rural tourism development. The analysis is based on official statistical data and on primary data collected using interviews and focus group meetings. The conclusion of the research is that the differences existing in the main development performances of the studied rural areas require application of specific development strategies that would be largely based on regional characteristics of these areas.

In the paper *Policy of Support to Agriculture and Rural Development,* the basic questions of the agricultural policy in Serbia are discussed. Serbian agricultural sector has been developed through three mutually conditioned tendencies: first, growth of labour productivity; second, decrease of relative process of agricultural and food products; and third, the decrease of income elasticity of demand for agricultural and food products. Although the agricultural policy has positive impact on the short-term problems, an extreme uncertainty in policy framework has been manifested in unfavourable condition to invest in agriculture. The market liberalisation of agricultural and food products took place which significantly increased international competition on the domestic market.

This monograph gives wide range information on Serbian agri-food sector and it is one of the few providing insight into the Serbian agri-food sector published in English language. Obviously the authors' intention is to provide information to the wide range of readers.

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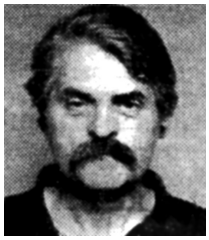
IN MEMORIAM



Dipl.inž. Milovan «Mićko» Radoičić

(1951. – 2013.)

Tužni skupe,

Dragi moj - a ne, no najdraži Milovane, moj brate u hristu i naravi, Silno me potresla tužna vest o tvojoj preranoj smrti.

Hoću danas da se od tebe oprostim i da ti se zahvalim za dugogodišnje druženje i prijateljstvo. Ovo prvo ne znam hoću li moći, a ovo drugo ne znam hoću li umeti??

Ovaj dug, koji u sebi osećam i sa tugom nosim, dužan sam tebi, a ti si meni samo dužan što si me napustio. Davno su drugi rekli –da čovek nije umro, nego da je nekud otišao, tako i mi kažemo - kad neko napusti Arenu života i bogato polje rada, kao Ti - bez zbogom - i ostavi sve što je stvorio i svakoga koga je voleo.

Dragi prijatelji - kolege i drugovi,

Kumovi - rođaci i braćo našega Mićka,

Ožalošćena porodice -

Nije bilo dovoljno Mićka znati, njega je trebalo upoznati, a ja sam ga dobro poznavao - od njega se moglo čuti - od njega se moralo naučiti... Ceo životni put i njega i njegove porodice, bio je pun, a ne, no prepun i uzbrdica i nizbrdica, sve od Đaka i Đavolje Varoši, preko Kuršumlije, stazama gvozdenoga puka, lomne Toplice i Prokuplja, uz Pomoravlje i predivnu Šumadiju u grad Beograd, Zemun i Surčin.

Godine su prolazile, a živelo se teško.

Prvi put smo se sreli 70-ih godina prošlog veka u Studentskom gradu, ja stariji, a on mlad student.

Za vreme studija, dakle tih godina sreo je Nadu, svoju životnu saputnicu. Stvaraju porodicu - decu Milutina i Milicu, za primer i ponos svima svojima. Znao je Mićko da i sebi i svojoj porodici postavi cilj, odredi prave putokaze i usmeri poruke, do kojih je stizao sa velikom mukom i sa puno znoja. Često ime je govorio. »Do cilja ne stižu oni koji stoje u mestu, niti vide cilj ako su promašili put»...«Nije sramota pasti, sramota je pasti a ne podiće se!».

Tužni skupe, naš Mićko je samo ovu bitku izgubio, ali na žalost, ona je i poslednja. Sudbina je brža od čoveka.

Ožalošćena porodice, vaš i naš Mićko je u sebi nosio mnogo dobrote i ljubavi, u njegovim toplim nedrima i njegovoj širokoj i raskošnoj duši bilo je mesta za sve vas, a posebno za malu unuku Emiliju. Njegovi saveti, iskreni i mudri nisu mogli da se zaborave. Sa vama, svojima najbližima umeo je kao retko ko - da podeli i radost i tugu. Ali, opaka i podmukla bolest i neumitna sudbina otele su vam Mićka iz vaših zagrljaja.

Dragi moj Mićko, ne umem ja tebi da održim govor. Ovo je moj poslednji razgovor s tobom - zato ti neću reći zbogom nego do viđenja. Pitao sam te - više i ne znam koliko puta - Ko bi tebe mogao savetovati... Tebe, koji i što ne znaš, bolje objasniš nego oni koji to znaju.

Prokleta smrt je i ovoga puta izgubila i to katastrofalno. Njoj pripade tvoje namučeno i trošno telo, a nama tvojim drugovima tvoje veliko delo i ljubav za nezaborav. Njoj 60-godišnjak, a nama vičiti «mladić» i nenadmašni boem i u srcu i u duši. Ko ovako ne misli, onda te nije dovoljno poznavao.

Blago danas tvome ocu i majci, lele tvojoj braći i sinu Milutinu, kuku tvojoj supruzi Nadi, sestrama, ćerki Milici i snaji Ani - a nama, tvojim drugovima, ostade prazna boemska stolica.

Ožalošćena porodice,

Bidite ponosni što ste ovakvog Milovana imali.

Mićko, neka te u tišini večnog mira čuva naše prijateljstvo i ljubav jača od zaborava.

Neka ti je večna slava i hvala!

U Surčinu, 7.11.2013. Milija Pantović - Miško

Poštovani Milovane Radoičiću - Durute,

Cenjeni roditelju, uvaženi rođače, i prijatelju, najbolji moj druže i Dragi Mrki, kako smo se od milošte zvali.

U sredu šestog novembarskog dana 2013. Godine u kući tvojoj koju si na Surčinskom ataru sagradio prestalo je da kuca tvoje srce.

Ovde pod vedrim nebom i suncem a za nas tvoje pod velikom tamom, zaogrnuo si nas velikim bolom i tugom i poslednji put okupio nad tvojim odrom. Vest o tvojoj smrti nam je izmamila suze i osećaj tuge na pomisao da se preseljavaš u večnost.

Preteško je izgovoriti poslednje slovo uglednom, divnom i poštenom čoveku iz čijih misli i zagrljaja je dvanaestog oktobarskog dana - (pre nepun mesec dana) u večnost otišao tvoj rođeni brat Dražo, i naš prijatelj. Njegovim odlaskom sa lica zemlje zabodena je pored tvog bola još teža rana u tvom izmučenom srcu.

Kao da si znao da će te tvoj Dražo u bratski zagrljaj dočekati tamo u nebeske skute, isto onako kao što je nas tvoje dočekivao i ugostio u studeantskim danima, dolazeći k nama tada iz daleke Libije.

Danas ti izgovaramo poslednji pozdrav u ime tvoje porodice (supruge Nade, sina Milutina, ćerke Milice, snaje tvoje i voljene unuke Eme i u ime tvojeg rodstva i bratstva i voljene tvoje Đavolje Varoši Đakanske, gde si pre 62- godine rođen i odakle si zakoračio u svet, učeći, stičući znanje i zvanje, gradeći svoje porodično gnezdo i učeći svoju decu vrednim ljudskim kvalitetima, ugrađujući im u mislima, srcu i duši svoju roditeljsku ljubav.

Dragi naš Mićko, moj druže Mrki, začeli smo druženje u našoj Đakanskoj voljenoj Đavoljoj Varoši provodeći dečačke čobanske dane, tada kada nam dani nisu bili datumi, kada smo dane merili izlaskom i zalaskom sunca, kada smo bez nastavnika naučili da sviramo frulu čiji je pisak zadrhtavao i treperio list jasike kao na vetru.

Za tebe i mene, kada je tada belosvetski ljudi nisu ni znali Đavolja Varoš nije bila svetsko čudo, već je naša prirodna lepota i Božji dar.

Iz voljene Đakanske Đavolje Varoši otišao si u Poljoprivrednu Prokupačku školu i završio je kao najbolji đak. I danas u susretu sa profesorima iskazuju sećanje da si jedini koji je četvorogodiše školovanje završio za tri godine i sve to sa odličnim uspehom.

Intelektualni nemir te je naterao da upišeš Poljoprivredni fakultet (Odsek za agroekonomiju) Beogradskog Univerziteta, i da na vreme opet sa odličnim uspehom završiš studije.

Odužili smo se donekle svojoj školi, u kojoj smo se kao profesori zaposlili i radili u njoj 1975. i 1976. godine. Iako mlad ispisivao si na tabli formule, pravila, hipoteze, savesno učeći svoje đake, koji te po tome a i iskazanom karate sportu pamte.

Nemir za znanjem odveo te je na Poljoprivredni fakultet u Zemunu gde si upisao poslediplomske – magistarske studije, i zaposlio se u zvanju asistenta da opet ulivaš studentima neophodna

znanja. I nadalje na svom životnom putu iskazivo si i bankarsko umeće sve dotle dok te bolest nije počela da savlađuje.

Sabiranje stečenih životnih iskustava nateralo te je kasnije da gledaš dalje i dublje, zrelije i ozbiljnije, a sasvim dovoljno da ukloniš zamagljene istine, zaboravljene činjenice, presečena svodočenja i prećutna zbivanja.

Za svakim kafanskim stolom za kojim smo sedeli sa društvom, govorio si brđanski, drugarski i prijateljski, zbivao šale i izazivao smeh. Bio si uvek meraklijski nastrojen i gospodski se držao.

Sedeći sa svojim društvom upijao si utiske, osluškivao dijaloge, posmatrao prisutna lica, lovio zgode i anegdote i koristio ih kao srećno postavljena ogledalca u kojima se prelamaju sudbine i karakteri, i hvatao si istinu čak i onamo gde je niko ne gleda u šetnjama, u kafanskim sedeljkama, na radnom mestu, živeći istovremeno u prošlosti i sadašnjosti.

Bio si čovek koji je mnogo proputovao, ali si se ipak vratio svom zavičaju sa još izoštrenijim čulima za njegovu lepotu, sagradivši najlepšu kuću svojim zamislima, iznemoglom snagom i vrednim rukama. Ni za blago i slavu celog sveta nisi dao ni svoj rodoslov, ni zvičajni zemljani pod svoje kuće.

Dragi naš Mićko, moj druže Mrki. Sa svojom vernom suprugom Nadom, stvorili ste svoju porodicu u svom toplom domu, koji je za sve nas tvoje bio sigurna adresa sa široko otvorenim vratima u koji smo svi tvoji dolazili.

Bio si oličenje dobrog domaćina i čazbenika držeći na okupu svoje prijatelje rodstvo i bratstvo u svojim kućama u Surčinu, na Dorćolu i u Đakanskom domu.

Na temeljima koje si celog života gradio, sazdano je tvoje delo, i obeležen tvoj ljudski lik.

Pružao si podršku onome što je dobro i vredno u čoveku. Cenio si ljude koji u sebi nose ljudskost. Nisi radio besmislene poslove, već si imao stvaralački duh.

Cenili smo tvoje moralne osobine i čestitost tvoga karaktera.

Dragi naš Mićko,

Mučio si se kroz život, ali si stekao rod i porod, prijatelje i poznanike i nalazio smisao u radu, porodičnoj brizi i domaćinstvu i čuvao si sa svojom Nadom porodicu kao Zlatnu nit.

Časno si nosio svoj životni krst, i do kraja nisi izmicao pred životnom sudbinom. Širinom svog srca i snagom svog ljudskog duha suprostavio si se surovim sudbinskim naletima.

I kada je neumitno kopnilo tvoje bolom izmučeno telo i napaćena duša, u duhu porodice čestitoga roda i tvog poštovanja prema porodici čije si ime dostojanstveno nosio, nisi jauknuo, niti svoju boljku do kraja iskazao.

Krčio si životni put uzdignutog čela, imao si snagu stvaranja i volju da na životnim vetrometinama ostaneš svoj, dosledan sebi, a istovremeno poštujući druge. Bio si svoj, i uvek naš.

Smejao si se, šalio i govorio kao i kada si bio najzdraviji.Umeo si da budeš i lep i duhovit i šarmantan i lepo obučen i sportski odvažan jer si imao znojem sportski zarađenog crnog pojasa u karateu.

Vodio si karate klub, u Prokupačkoj poljoprivrednoj školi, na Poljoprivrednom fakultetu u Zemunu i tu sportsku aktivnost si dalje nastavio sa svojim karate klubom u Surčinu.

Umeo si da budeš u društvu lepe gospode i dama i pesnika i profesora i funkcionera i sa najrođenijima.

Tragovi tvog življenja su prepoznatljivi. Stvorio si dom i domaćinstvo, kuće i kućišta.

Pored bola koji te je zadesio, u svojoj duši si nasio i radost, a kao sunce ti je ogrejalo srce tvoj porod tvoj sin Milutin, tvoja ćerka Milica, tvoja premila unuka Ema. Sve si to stvorio sa tvojom najvernijom Nadom.

Prolaznost je jedina izvesnost u životu. Smrt nije kazna, već Božji zakon. Imalo je mesta i vremena još da koračaš.

Sudbinsko sečivo je preseklo tvoj životni put. Ostavio si tvojoj Nadi preteško breme, da bude i domaćin i domaćica.

Prvi put za navek odlaziš od nas, bez razgovora , bez osmeha, sa zaustavljenim korakom, sa spuštenim vrednim rukama i bez vedrog pogleda sa zatvorenim očima.

Nećeš nas više ni dočekivati ni ispraćati, ni ruku pružiti ni razgovoriti.

Za koji trenutak, sa punim ljudskim pokrićem predaćemo te crnoj zemlji koja rađa, ali evo i koja uzima.

Odlaziš u zagrljaj svom bratu Dražu, svojoj majci i ocu.

Tvoja porodica, rodstvo i bratstvo i mi tvoji, opraštamo se od tebe, nosimo te u pamćenju dostojanstveno, ali i sa osećajem bola i tuge.

Dragi naš Mićko, dragi Mrki moj najbolji druže, uz Božju milost počivaj u miru večne tišine. Neka ti se rajski duša raduje, laka ti zemlja, večna slava i neizmerno hvala.

Zbogom moj druže Mrki.

U Surčinu, 7.11.2013. Prof. dr Dragić Živković

DETAIL INSTRUCTIONS TO AUTHORS WITH TEMPLATE FOR THE ARTICLES THAT WILL BE PUBLISHED IN JOURNAL ECONOMICS OF AGRICULTURE

The ECONOMICS OF AGRICULTURE is an international scientific journal, published quarterly by Balkan Scientific Association of Agricultural Economists (BSAAE) in cooperation with Institute of Agricultural Economics Belgrade (IAE) and Academy of Economic Studies Bucharest (ASE), in which are published original scientific papers (double reviewed), review articles, pre-announcements, book reviews, short communications and research reports. Research reports and book reviews will be accepted after previous consultation/invitation with/from either a journal Editor, or Editor of the book review, in accordance with the journal submission criteria.

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The articles have to be submitted in duplicate, providing one copy without information about author(s), in order not to violate double-blind review process. In the second copy of the article must be specified all information about author(s) (in required format) that are necessary for further correspondence and full transparency of published article.

Submission of articles to the ECONOMICS OF AGRICULTURE implies that their content has not been published previously in English, or in any other language. Also, submitted papers should not be under consideration for their publication elsewhere (in some other journal) and their publication has to be approved by all authors with signed declaration. Publisher reserves right to verify originality of submitted article by use of specialized software for plagiarism detection.

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Anđela Marković[2], Petar Petrović[3], Mirko Mirković[4]

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It is desirable that Summary contains up to 150 words, as well as to contain all essential paper elements, such as goal(s), used method(s), important results and general authors' conclusion(s).

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1 Paper is a part of research within the project no. III 46006 - Sustainable agriculture and rural development in the function of accomplishing strategic objectives of the Republic of Serbia in the Danube region, financed by the Ministry of Education, Science and Technological Development of the Republic of Serbia. Project period: 2011-2014. ***This segment is not obligatory within the paper***.

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Introduction

Please strictly follow the instructions on article formatting, as well as styles provided in this template. Do not change font size, interspace between paragraphs and line spacing to insert more text into a conditionally limited number of pages.

Editorial Board organizes process of review of submitted articles and selects papers for publication based on the performed review, in other words according to estimated quality of the articles by the appointed reviewers. However, the ultimate responsibility for the views, originality and stands within the articles is exclusively on author(s) of manuscripts.

Please follow the basic principles of scientific papers structuring and try as much as possible to write a paper with next segments: Introduction, Paper goals, Data sources, Methodology, Results with Discussion, Conclusion (with Recommendations), Literature, etc.

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Table 5. The distribution cost of packaged goods from Subotica to retail-store objects

Indicators	Period			Total
	Month 1	Month 2	Month 3	
Distance crossed (km)	12.926	11.295	13.208	37.429
Fuel consumption (litre)	3.231	2.823	3.302	9.356
Value of fuel consumption (RSD)	242.378	211.790	247.653	701.821
Total time spend on touring (hour)	314	266	417	997
Value of total time spend on touring (RSD)	47.048	39.890	62.570	149.508
Number of tours	98	77	102	277
Toll value (RSD)	0	0	0	0
Number of pallets transported (piece)	1.179	976	1358	3.513
Total weight transported (kg)	602.600	429.225	711.116	1.742.941
Vehicle maintenance costs (RSD)	203.858	164.970	224.806	593.634
Lease costs (RSD)	480.938	454.214	565.784	1.500.936
Total sum (RSD)	974.222	870.864	1.100.813	2.945.899

Source: Petrović, 2012;
Note: Values within the table are calculated without Value Added Tax (VAT)

Graphs, dendrograms, diagrams, schemes and pictures should be entered within the text of article (do not use option Float over text) and numerated according to order of their appearance. Their titles have to be positioned immediately above the graph, dendrogram, diagram, scheme or picture to which they relate. Please, have in mind that all titles, sources and notes have to be written by identical style which was used for tables formatting. During the article writing please mark in the main text all calls to a certain graph, dendrogram, diagram, scheme or picture (*Graph 2*.). All graphs, dendrograms, diagrams, schemes and pictures within the paper have to fit the specified format of the page, as well as they have been centrally positioned. Photos and images are not desirable in the paper, but if they can not be avoided, please use an optimal resolution (low resolution can bring to pixelization and worn edges, while to high resolution only increase file size without any contribution to article readability).

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ŠABLON: NASLOV RADA (CENTRIRAN, TNR SIZE 12, BOLD, SVA SLOVA VELIKA, MAKSIMALNO DVA REDA)[1]

Anđela Marković[2], Petar Petrović[3], Mirko Mirković[4]

Summary

Poželjno je da rezime sadrži do 150 reči, te da sadrži sve bitne činjenice rada, poput cilja rada, korišćene metode, najvažnijih rezultata i osnovnih zaključaka autora.

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Izbegavajte korišćenje indeksa i specijalnih simbola u apstraktu, odnosno definišite sve skraćenice u apstraktu kada se prvi put upotrebe. Nemojte citirati reference u apstraktu.

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Key words: *navesti, maksimalno, pet, ključnih, reči.*

JEL: *Q16, M24* (www.aeaweb.org/jel/jel_class_system.php)

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Introduction

Molimo Vas da striktno poštujete uputstva o formatiranju i stilove date u ovom šablonu. Ne menjajte veličinu fonta ili razmak redova da biste ubacili više teksta u uslovno ograničeni broj stranica.

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Tabele moraju biti formirane u tekstu rada, a ne preuzete u formi slika iz drugih materijala. Tabele unositi u sam tekst rada i numerisati ih prema redosledu njihovog pojavljivanja. Nazivi tabela moraju biti dati neposredno iznad tabele na koju se odnose. Koristite dole prikazani stil tokom njihovog formatiranja. Naslov tabela pisati sa razmakom 6 pt – iznad/before i 3pt – ispod/after, u fontu TNR, font size 11, ravnanje Justified. Tekst unutar tabela pisati fontom TNR, font size 9. Tekst u zaglavlju tabela boldirati. Izvor i potencijalne napomene pisati sa razmakom 3 pt ispod tabela (before). Izvore i napomene pisati u fontu TNR, font size 10,

ravnanje Justified. Naredni pasus početi na razmaku od 6pt od izvora tabele ili napomene (after). Tokom pisanja rada u originalnom tekstu treba markirati poziv na određenu tabelu (*Table 5*.). Trudite se da se sve tabele u radu veličinom uklapaju u zadati format strane (Table properties – preferred width – max 97% - alignment: center). Sav tekst u poljima tabele treba unositi u formi (paragraph – spacing: before/after 0pt, line spacing: single). U slučaju da se tabela lomi na narednu stranicu, molimo Vas da prelomljeni deo tabele na narednoj stranici bude propraćen zaglavljem tabele.

Table 5. The distribution cost of packaged goods from Subotica to retail-store objects

Indicators	Period			Total
	Month 1	Month 2	Month 3	
Distance crossed (km)	12.926	11.295	13.208	37.429
Fuel consumption (litre)	3.231	2.823	3.302	9.356
Value of fuel consumption (RSD)	242.378	211.790	247.653	701.821
Total time spend on touring (hour)	314	266	417	997
Value of total time spend on touring (RSD)	47.048	39.890	62.570	149.508
Number of tours	98	77	102	277
Toll value (RSD)	0	0	0	0
Number of pallets transported (piece)	1.179	976	1358	3.513
Total weight transported (kg)	602.600	429.225	711.116	1.742.941
Vehicle maintenance costs (RSD)	203.858	164.970	224.806	593.634
Lease costs (RSD)	480.938	454.214	565.784	1.500.936
Total sum (RSD)	974.222	870.864	1.100.813	2.945.899

Source: Petrović, 2012;
Note: Values within the table are calculated without Value Added Tax (VAT)

Grafike, dendrograme, dijagrame, šeme i slike treba unositi u sam tekst rada (ne koristiti opciju Float over text) i numerisati ih prema redosledu njihovog pojavljivanja. Njihovi nazivi se moraju pozicionirati neposredno iznad grafika, dendrograma, dijagrama, šeme ili slike na koju se odnose. Kod navođenja naslova, izvora i napomena koristiti isti stil koji je predhodno prikazan za formiranje tabela. Tokom pisanja rada u originalnom tekstu treba markirati pozive na određeni grafik, dendrogram, dijagram, šemu ili sliku (*Graph 2*.). Svi grafici, dendrogrami, dijagrami, šeme i slike u radu se svojom veličinom moraju uklapati u zadati format strane, te moraju biti centralno postavljeni. Fotografije nisu poželjne u predmetnom radu, a ukoliko se one ne mogu izbeći molimo Vas da koristite optimalnu rezoluciju (preniska rezolucija dovodi do pikselacije i krzavih ivica, dok previsoka samo povećava veličinu fajla bez doprinosa čitljivosti rada).

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