

SOME TRENDS IN THE AGRICULTURAL DEVELOPMENT OF THE MUNICIPALITY OF MAGLAJ

Aida Avdić & Džejlana Jašić

University of Sarajevo, Faculty of Science, Department of Geography,
Zmaja od Bosne 33 – 35, Sarajevo, Bosnia and Herzegovina

Agriculture of Maglaj municipality does not take a significant share in the overall economic structure, taking into account that the largest share belongs to the secondary sector. The development of the municipality of Maglaj has always relied on the pulp and paper factory „Natron – Hayat“, that had primacy in the local economy. Due to market demands and new market policy, economic structure is changing in favor of the tertiary sector, while the share of agriculture in the above structure is constantly decreasing.

By analyzing the natural resources that owns the municipality of Maglaj and taking into account new trends in agricultural activities that have engulfed the whole country, and are related to the cultivation of berries, is spotted the potential of Maglaj Municipality for the development of agriculture based on farming, especially raspberries. Also, consideration should be given the fact the interest of local people become involved in this activity, which serve as proof of the existing plantations of this culture, realized profit and the tendency toward further expansion of berries, which will improve the overall agricultural activity.

Key words: *Maglaj, agriculture, berries, development perspective, working resource, young*

INTRODUCTION

Agriculture is one of the most important sectors of the economy based on the principles of sustainable agricultural production and the principles of its competitiveness and cost-effectiveness. Agriculture in the municipality of Maglaj does not occupy a significant place in the economic structure with a share of gross domestic product of less than 1%.

Analysis of the collected indicators pointing on the still low level of development of agricultural production in the municipality of Maglaj, which results in a low level of employment in agriculture, hunting and forestry, or a chance to activate significant and untapped resources (Development Strategy of the Municipality of Maglaj for the period 2012-2020). This is helped by the fact that of the 292 companies in the municipality of Maglaj, only 2% is related to agricultural activities. The lack of experience in dealing with agriculture, which is largely based on the earlier meeting their own needs with individual producers, it is certainly an aggravating factor for the rapid development of agriculture in the municipality of Maglaj. Lately is recognized the importance of agricultural development by increasing the number of employees, the establishment of a large number of agricultural cooperatives and the activation of the municipal structure in engagement incentives for this type of economic activity.

Natural resources are unchanging physical category, and in this aspect an increase in agricultural production is a result of growing profitable crops, particularly berries, which have the prospect of full exports. In order to prove this hypothesis has already carried out a

survey in the local population on a given issue and interviews with municipal officials in charge of the issue of agriculture. In the direction of improving this type of agricultural activity is aimed, in addition to the existing industrial capacities, the activity of the municipal government, which is also driven by the Strategy for Development of Maglaj Municipality. Thus, the natural resources it has available space Maglaj municipality provides favorable conditions for the development of this type of farming, which is the object and the subject of this paper.

PRIMARY GEOGRAPHICAL INDICATORS FOR MUNICIPALITY OF MAGLAJ

Maglaj is one of 12 municipalities of the Zeničko - dobojski Canton, which with an area of 289 square kilometers is one of the municipalities the average size of the Canton. It is located along the river valley of Bosnia, 125 km north of Sarajevo. This is a geographical area that in regional and geographic terms belongs to Sjeverna Bosna which occupies south part of the central sub-regional entities that are in geographical literature indicates as Donji Bosnin kraj (Spahic, M., Jahic, H. 2014). Regional geographical definition of the area incorporates the northern temperate belt landscape, forest-grass floor height (Bušatljija, I. 1998).

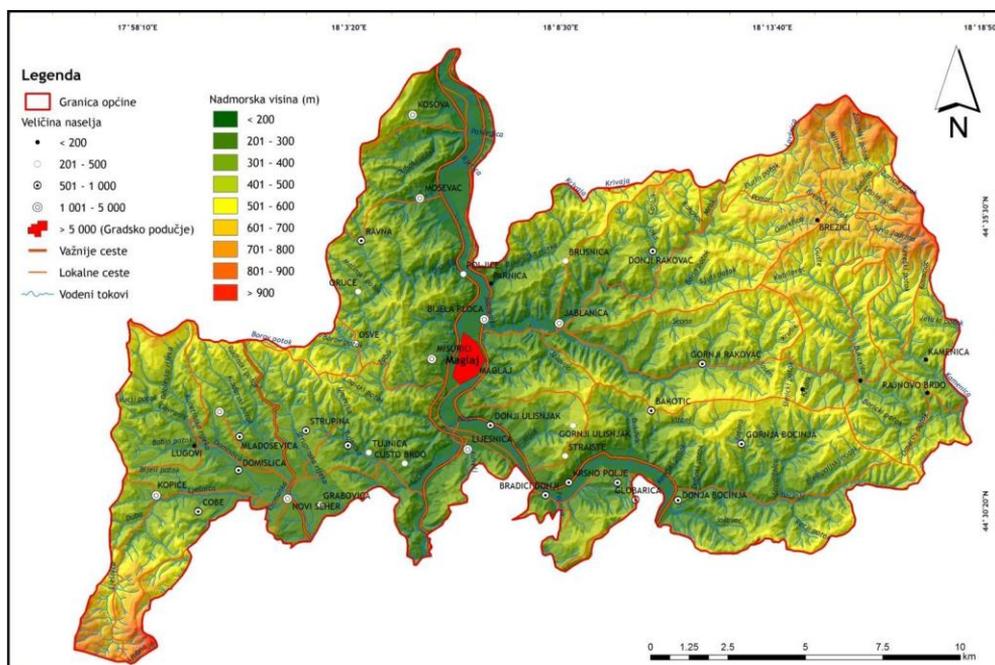


Fig. 1. Map of municipality Maglaj (ArcGis 10.1.)

The central territory of the municipality Maglaj procedure spacious part of the Bosna River Basin, which also forms the main potamologic backbone of the municipal territory. The valley is rugged tributary valleys of Lješnica the left and downstream of Jablanica, on the right side. They are fluvial erosion and decreased the impact on the formation of expanded floodplain, terracing valley in hypsometric levels, which define the low relief hills

and drainage Bosnia on this part of its talvi. In addition, the old geological presented ophiolites and effusion magmatites given rise to a very thick crust of decomposition, from which emerged fluvisolna soils typical of the valley of Bosnia and directly with its tributaries, as well as the distric cambisols and rankers in the wider catchment of the river Bosna, which belongs to the municipality of Maglaj.

Valley-morphological set of Maglaj municipal areas initiated the significant continental climate of the north, which caused moderate continental climate type, which according to some higher elevations, especially in the east, modify the subalpine climate type.

This is an area inhabited during the Neolithic period and is defined in this period by the remains of the Butmir culture. It binds to the Illyrian tribe Mezey, who inhabited these lands. In a further development of the territory of the municipality Maglaj was space colonization of tribes from Central and Eastern Europe. Later development is linked to the Ottoman period, then the Austro-Hungarian, Yugoslav, and at the end of the Bosnian, following international recognition of Bosnia and Herzegovina as an independent state. Maglaj Municipality borders with the municipalities of Doboj, Petrovo, and Teslic from the Republic of Serbia, and Banovići, Tešanj, Zavidovići and Žepče from Federation of Bosnia and Herzegovina.

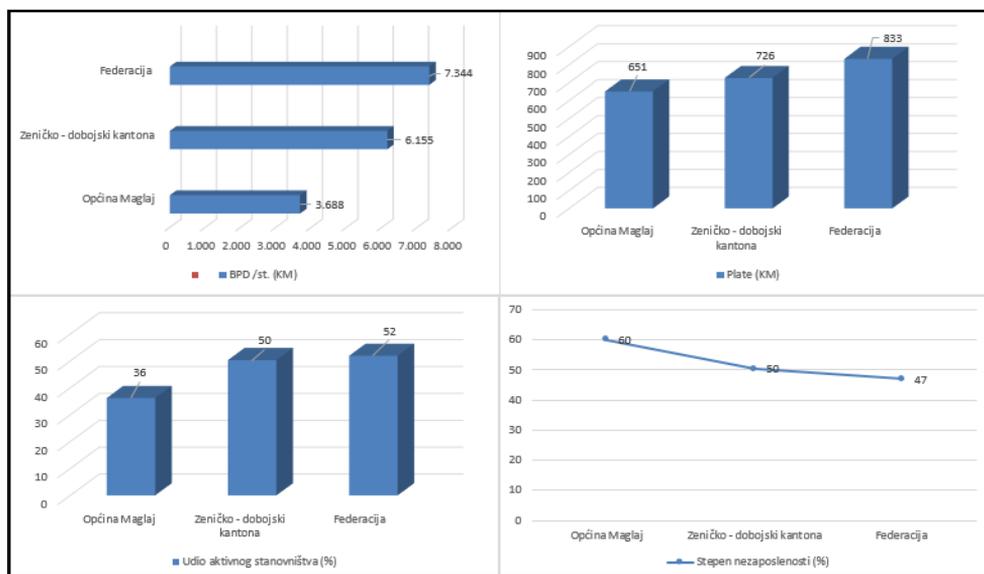


Fig. 2. Economic indicators of development of the municipality Maglaj

In the area of Maglaj municipality until 1991 lived 43.388 inhabitants, according to preliminary data from the 2013 census, the total population is 24,980. Maglaj has a favorable traffic position and thus very good transport links urban center railway Ploče-Sarajevo-Doboj-Bosanski Šamac and the M17, which is the center of Bosnia and Herzegovina related to the north with the Republic of Croatia and the region of Central Europe, and saddle Ivan connects the valley with Bosnia Neretva valley, in the south of the Adriatic sea. This transport link will improve upon completion of the highway within Corridor Vc, on whose route to the territory of the municipality of Maglaj. Within the municipal territory there is a very suitable longitudinal traffic connection with the municipal

center of settlements in the municipal territory. This certainly contributes to achieving the intended objectives of the new agricultural production.

Economy picture of the Maglaj Municipality rests on monostructured character, primarily wood processing industry, which has long been the bearer of economic development and prosperity. Today's economic picture is gradually adapting to changes and demands of the market with the engagement of Resources at its disposal, which led to a shift that resulted in appreciable economic development of the municipality. Although the company Natron-Hayat, cellulose and paper factory (one of the most successful examples of privatization with an investment of 90 million euros) held primacy in the local economy. In the postwar period begin to open factories for the production of textile products, metals, transport, shops giving momentum of economic development Maglaj. The question of economic development and resources at the disposal of Maglaj remains a top priority. Given the many natural resources at its disposal Maglaj municipalities of which in particular: arable land, forests, rivers, drinking water sources, mineral wealth and human resources are a serious potential for development of other activities that are not necessarily linked to the secondary sector, which is primarily related to the development of agriculture, in particular: farming, fruit growing, horticulture, dairy, poultry, beekeeping, animal husbandry and others activity.

The analysis of the indicators, as required by the Development Strategy of the Municipality Maglaj 2012-2020., the degree of development of agricultural activities in the municipal area is still low which results in low employment of the active population in the primary sector and the share of primary sector business entities in the percentage share of 2.5%. All of the above provides the ability to activate significant and untapped resources for agricultural development.

According to the indicators of the Federal Bureau of Statistics in 2014, the unemployment rate of the municipality Maglaj was around 60%, or 5,318 people, while the employee was 40%, or 3,621 residents of the municipality Maglaj. According to the index of development of the Federation of Bosnia and Herzegovina in 2014, the municipality of Maglaj belongs to the underdeveloped municipalities, whose development is below 50% (47.9%). The share of imports was 0.51% and in exports of 2.2%, indicating extremely low participation of municipalities in the trade. Gross domestic product per capita is 3.688 KM, which is far below the cantonal and federal average. Statistical indicators show the unfavorable economic picture that requires new planning and strategic approaches to the revitalization of the overall economic picture (Fig. 2).

AGRICULTURAL RESOURCES OF THE MUNICIPALTY MAGLAJ

Analysis of natural and geographical elements in the territory of the municipality Maglaj shows that all of its component elements offer all the benefits of agricultural activities. In the analysis of component elements include: relief, climate, water, soil and vegetation.

The relief of the territory of the municipality of Maglaj is represented by low hills, hills, river valleys and terraces, a greater part of the flat and slightly hilly regions in the central and western part. Morphometric relief articulation is not pronounced and shows the average hypsometric range of 200 meters in the valley of the river Bosna to 800 meters in the east of the municipality Maglaj (Fig.1). Relief slopes are mainly oriented to the southern,

southwestern and eastern falls exposures (Figure 6). Over one-half of the municipal territory has slight inclines and amounts to 12 °, while the end, southwestern parts of something steeper and downs ranging up to 32° (Fig. 3).

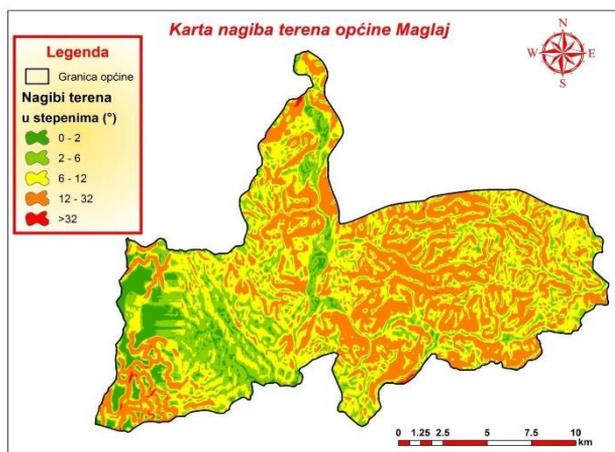


Fig. 3. Map of sloping terrain of municipality of Maglaj

which are measured negative temperatures and amounts to about -1°C . According to these guidelines thermal Maglaj belongs to rather warm summers and moderately cold winters. In this connection is the vegetation period. Thus, the average starting date of the vegetation period with temperatures higher or equal to 5°C is 11th of March and completion is 21st of November. If the vegetation period applies to crops that are adapted to the growing season, beginning and ending an average temperature of 10°C , then begins on 1st of April and ends on 21st of October. The duration of the vegetation period is ideal for the cultivation of arable, vegetable crops and all kinds of fruit from berry to woody. Within the vegetation period, realizing the optimum sum of active temperature for germination, plant growth and development by providing high-quality fruit.

During warmer periods of the year, in the Municipality of Maglaj, on average achieves 80 summer days which means those are days that provide continuous temperatures that are higher or equal to 25°C . Tropical days, days in which temperature does not fall below 30°C on average has 20 Equally during the colder periods of the year has a freezing days in which the temperature is lower than 20°C . Rainy regime is in line with the continental influences while the annual average is 955 mm contours.

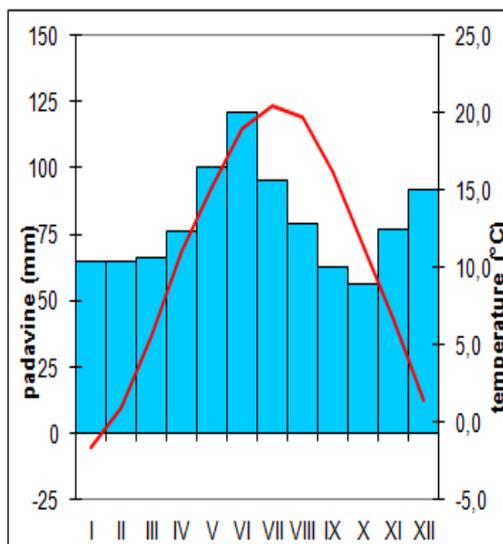


Fig. 4. Climate diagram of temperature and precipitation.

Distribution of rainfall is uneven (Fig. 4). Most rainfall is excreted during the spring and early summer, when they are most needed during the growing season. In this period is excreted more than half of total precipitation. From this period are the most important ones in April, May and June, when the plants need it most. Such distribution of precipitation in Bosnia and Herzegovina, where they are most needed development of the plant, called "Bosnian monsoon" (Spahic, M. 2002). During the colder period snowfall are excreted, which the average date of the first snow is 16th of December, a date of last snow 1st of April. Snowfall, especially during the last decades are kept short and snowy winter is shortened to about 20 days.

The pedological structure distinguish the following types of soil: the hydromorphic alluvial plains and valley widening the river Bosna and its tributaries, or fluvisol these automorphic soil cambisols, luvisol and rankers (Fig. 5). They have the largest distribution and are very deep and suitable for agricultural activity except dystric cambisols and rankers who are most suitable for agricultural production, but its light treatment t is an advantage. Fluvisols with the physical properties and good porosity and permeability is very suitable for agricultural production, except in the zone of bottomland that often flooded by high waves in the drainage area of Bosnia. If we add to these synoptic and climatic benefits, which have already been discussed, then the territory of the municipality of Maglaj has all the favorable geographical elements, and thus predisposition for successful agricultural large – scale production and other types of productions.

Maglaj has an area of 10,824.7 ha of total agricultural land, which makes 45.3% of its surface area, of which arable makes 78.7% and 21.2% pastures waste land. Municipality of Maglaj is characterized by the fragmented structure of the property with the orientations in the production mainly to meet the needs of their own household. Market surpluses are sold at markets or delivered to registered purchasers at pre-agreed purchase prices.

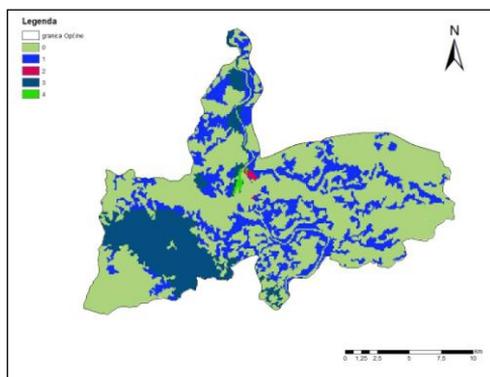


Fig. 5. Map of soil categories of municipality of Maglaj

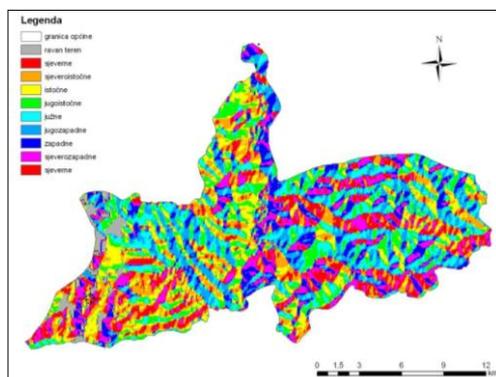


Fig. 6. Map of relief exposure of municipality of Maglaj

Due to the fragmentation of arable land it is needed to focus on agricultural production with high added value per unit area which includes the establishment of intensive plantations, berries and other fruits where and in which municipal government operates supportively. The aim of these incentives encourage the development of agricultural

production, especially berries; particularly raspberries, blackberries and strawberries, which allows a natural geographical advantage predisposition.

Trend of the growth and development of berry and berries, especially raspberries in Bosnia and Herzegovina is constant and each year to double production and raspberry export to the European market. Intensification of production of those species has already given a positive and recognizable effects of agricultural and economic development in the municipality of Maglaj.

Of the berry or berries in the municipality of Maglaj are represented by plantations of raspberry, blackberry, strawberry, blueberry and chokeberry. According to available information, the municipal department for agriculture, plantations under raspberries in late 2015. amounts are 680 acres, which makes 0.8% of the total arable land of the municipality Maglaj. It is assumed that at the end of 2016. under these plantations will be a total of 1000 acres, or 1.2% of the total arable farmland, a trend which shows an annual increase in the area under crops of this culture, a little more than 300 acres. Farmers quantity produced raspberries and blackberries drawers predominantly purchasers such as: "Pronatura" Zenica, "H & H Fruit" Bugojno "Frutti Funghi" Visoko, "Klas" Sarajevo and others. Earnings is a critical factor for growing berries, because the purchase price of raspberries in 2015. reached up to 4 KM / kg. Taking into account the above data, and raspberry plantation on an area of 680 acres and yield of raspberries from 680 tons / acres would mean that the realized profit is 2.7 million KM. However, this must be added the fact of existence of oscillations in yields, which means that the yield of one tonne per acres in ideal conditions achievable.

The results so far in dealing with this activity show positive trends and suggesting that the intensification of this industry and agricultural production in general, could improve the economic sector. Agriculture is multifunctional economy that has a primary role of nutrition and sustainable agricultural development. Marketable surpluses of agricultural crops and their placement are the basis and impetus for economic development, as the overall economy of the municipality Maglaj gives objective and realistic perspective trends in the employment of the population and a significant contribution to the local economy.



Fig. 5. Plantations of berries in the municipality Maglaj

Structure of employees in the analyzed sample is consisted of 46.6% employees, while 53.4% were not in employment, which is the approximate ratio of employed and unemployed in the municipality of Maglaj. On the survey question, which is: "Would you practiced agricultural activity", 50% gave a positive response, and the same negative. To the question: "Would you practiced cultivation of berries", 60% were positive, and 40% are not

In order to prove that the municipality of Maglaj has a base for the development of agriculture and boosting economic development and to the cultivation of berries represent the perspective of strengthening agriculture and contributes to the reduction of unemployment survey was conducted in the municipality of Maglaj. From the selected sample survey 60% of them is the population under 30 years of age, 26.6% belongs to age group of 30 to 50 years and 13.3% of the group is over 50 years.

engaged in the above mentioned activity. Analyzing the relation between the second and fourth questions, namely whether the tested sample is employed or not and whether to deal with growing raspberries and other berries, it was concluded that 90% of those who have confirmed that they would like to deal with growing raspberries also make and employed population. Of the interviewed sample all considered to raspberry and other berry fruits has prospects for development in the municipality of Maglaj.

Based on the survey and the sample selected for the same can be concluded that, although the municipality of Maglaj has a base for the development of agriculture, especially for fruits (berries), a significant proportion of unemployed young people are not enthusiastic and so much interested in employment in the agricultural sector. Specifically, the total number of respondents 40% of them said they did not want to deal with the growing raspberries and other berries and did not want that their main source of income is from agriculture. This finding points to the idea that the awareness of young people about agriculture is not developed to such an extent, in order to assume the important measures and activities for the development of this activity, as this would reduce the number of unemployed. Agriculture is still seen as an activity that binds the population of rural areas, and where does the process of depopulation followed deagrarianism. Analyzing population and its structure especially in economic terms, can also come to the conclusion that in the area of agriculture in this area deals with the population older than 40 years.

WORKING RESOURCE OF MUNICIPALITY OF MAGLAJ

The study population has one of the great importance and is considered key in understanding the economic and social development trends. When it comes to the population of the municipality Maglaj it is important to point out that in the period 1991-2013. have seen a big drop in the number of inhabitants and with 43.388 how much was in 1991. to 24,890 in 2013. The decrease in population is the result of the war and territorial redistribution settlements and the introduction entity lines.

War depopulate and its mechanical movement was influenced, among other things, by the negative rate of natural increase. This situation points to the alarming situation and the necessity of taking action to improve the demographic picture. This is the best observed and the age structure, which according to estimates from 2014 demonstrated the enormous value of the share of the older population over 65 years, which for the municipality of Maglaj is

13.1%. Also, the age dependency ratio (45) shows the burden on the population of working age by the pre-working and working groups.

When it comes to population related to agricultural activity, which is the subject of this paper, it is certainly an important analysis of the economic structure which leads to data on labor resource of Maglaj municipalities. The general activity rate of the municipality of Maglaj, which shows the share of the total

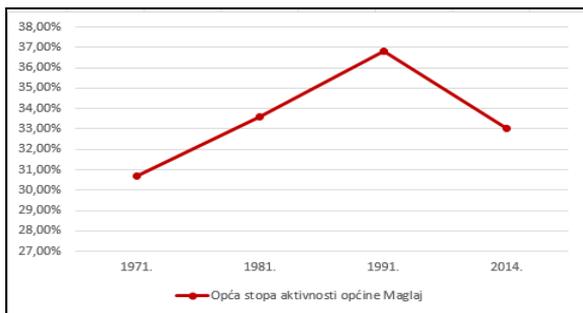


Fig. 6. Activity indicator of the population of the municipality of Maglaj in period 1971 – 2014.

active population in the pre-war 36.8% decreased to 33% in 2014. On this indicator is greatly influenced the socio-economic conditions that have led to some changes. When it comes to the structure of the population by activity, large share of the municipality of Maglaj have dependents which has 54.4%. The share of employees in the active population for 2014. was 40%, as compared with 1991. amounts to an increase of only 3%, which is for a period of 22 years negligible. Number of employees is greatly reduced from the 90s, specifically for the 5,030 employees compared to 2014. It is important to emphasize certain features of unemployment in order to understand the seriousness of the problem. In 2014, all unemployed persons were averages 35 years of age, and the time of job hunting is on the rise. The share of employment in the primary sector in 1991 was 0.96%. The primary sector in general has the lowest share of employees, which is due to under-utilization of agricultural land which indicates a low level of development of agriculture.

Based on the above, and as it is pointed out in the Strategy for Development of the Municipality of Maglaj, the commitment in the field of employment and labor market burdened by a series of problems, such as still insufficient economic base of the real sector, a large number (Fig.6.) of employed in non-economic activities, the disproportion between the supply and demand for labor.

CONCLUSION

Analysis of the collected indicators points to the still low level of development of the activities in agricultural production in the municipality of Maglaj, or in relation to the pre-war situation were it is achieved significant progress in this area, in its restructuring and new, modern approaches to production.

On the basis of relief predisposition, climatic characteristics and land structure of municipalities of Maglaj has good preconditions for the development of agricultural production, and that additional efforts and activities can be improved. An indispensable factor in the efforts to improve the primary activities is the labor resource. In the total population of the municipality, the active population makes up over 70%, which shows a very great vitality and productive capacity, both in terms of age, general health skills and professional qualifications and practical skills for certain professions, and the competitive ability. Also, a good and reliable recruitment basis in labor supply, both now and in the future in terms of meeting the demand for labor in the labor market for all types of businesses.

Different analyzes was determined that the best prospects in the promotion of overall agricultural production has a growing berries, especially raspberries. Statistical indicators show the growing trend so far this crop. According to available information, the municipal department of agriculture crops under raspberries in late 2015 is the 680 acres, accounting for 0.8% of the total arable area of the municipality of Maglaj. Assumptions are that by the end of 2016 under the areas of berries will be a total of 1000 acres, or 1.2% of the total arable land, a trend which shows an annual increase in the area under crops of this culture over 300 acres.

Taking into consideration that the income from these plantations was approximately 2 million convertible marks, and that the upward trend in character, noticeable is indisputable perspective municipalities in intensifying areas under raspberries. This is supported by the great interest of the population for the same, as confirmed by the survey research.

References

- Bušatlija, I., 1998: Karta prirodnih regija Bosne i Hercegovine, Atlas svijeta, IP Sejtarija, Sarajevo, str. 24.
- Spahić, M. I. 2002: Opća klimatologija, Harfo – graf, Sarajevo
- Spahić, M., Jahić, H. 2014: Geografske regionizacije Bosne i Hercegovine u svjetlu evroatantskih integracija, Acta geographica Bosniae et Herzegovinae, 1, 35 – 52, Udruženje geografa u Bosni i Hercegovini, Sarajevo
- Strategija razvoja općine Maglaj 2012 – 2020., Maglaj, 2012.
- Kantoni u brojkama – 2014., Federalni zavod za statistiku, Sarajevo, 2014.
- Preliminarni rezultati popisa stanovništva 2013. godine, Agencija za statistiku BiH, Sarajevo, 2013.

Authors

Aida Avdić

Student of Master studies at the Department of Geography (Regional and Spatial Planning), Faculty of Science, University of Sarajevo, Bosnia and Herzegovina.

Džejlana Jašić

Student of Master studies at the Department of Geography (Tourism and environmental protection), Faculty of Science, University of Sarajevo, Bosnia and Herzegovina.